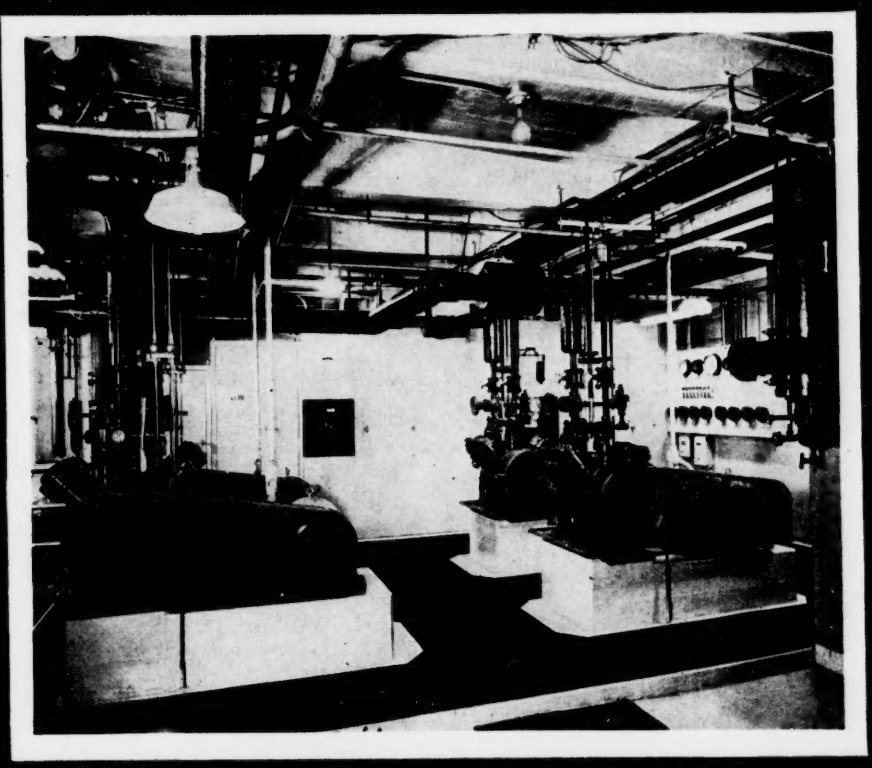
ICE and REFRIGERATION



New Equipment Cuts Operating Time in Half . . Page 23

OCTOBER • 1950

Ice Provides Best Refrigerant For Foods and Drinks Page 41

REFRIGERATION AT LOWER COST

You get more refrigeration tonnage per dollar when you lubricate compressors with *Texaco Capella Oils* . . . because these fine oils are designed to keep both compressors and systems clean.

Texaco Capella Oils are especially made for compressor lubrication. They are highly refined and exceptionally stable, with high resistance to oxidation. Thus, they keep compressors free of carbon, gum and sludge formations. In addition, *Texaco Capella Oils* are moisture-free, with very low pour tests, and do not react with refrigerants. Systems stay clean.

Whatever the size or type of your compressors, there are *Texaco Capella Oils* of suitable viscosity to assure clean, efficient, low-cost operation. Let a Texaco Lubrication Engineer help you make a proper selection.

Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

PLAN NOW

TO CUT POWER COST

AND BOOST TONNAGE WITH

Vogt BRINE COOLERS

WRITE FOR COMPLETE DETAILS
ASK FOR BULLETIN BC2

DOWN GOES POWER COST AND UP GOES TONNAGE when old evaporators are replaced with modern, Vogt Brine Coolers. The reason . . . maximum evaporating surface packed into a minimum of space with correct design and sound construction the controlling factors.

Vertical Multipass type coolers can be furnished for use where floor space is limited and ample head room is available.

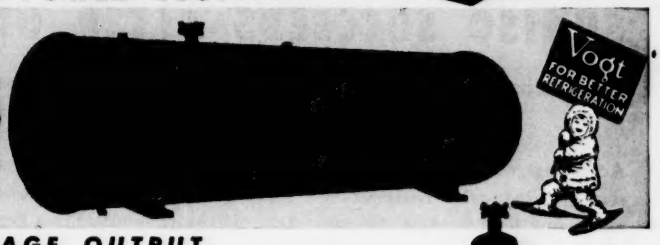
MULTIPASS TYPE

The cooler for closed brine systems in cold storage plants, dairies, packing plants, oil refineries, etc., requiring units of large capacity.

LOWER YOUR POWER COST

SINGLEPASS TYPE

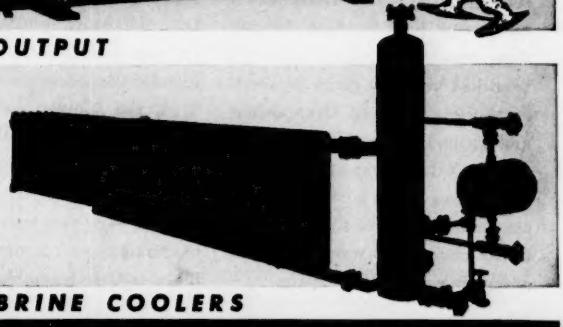
Standard for ice freezing tanks and ideal where multiple can lifts are used. Large gas liberation area and rapid circulation of brine makes this a very efficient unit.



RAISE TONNAGE OUTPUT

COIL TYPE

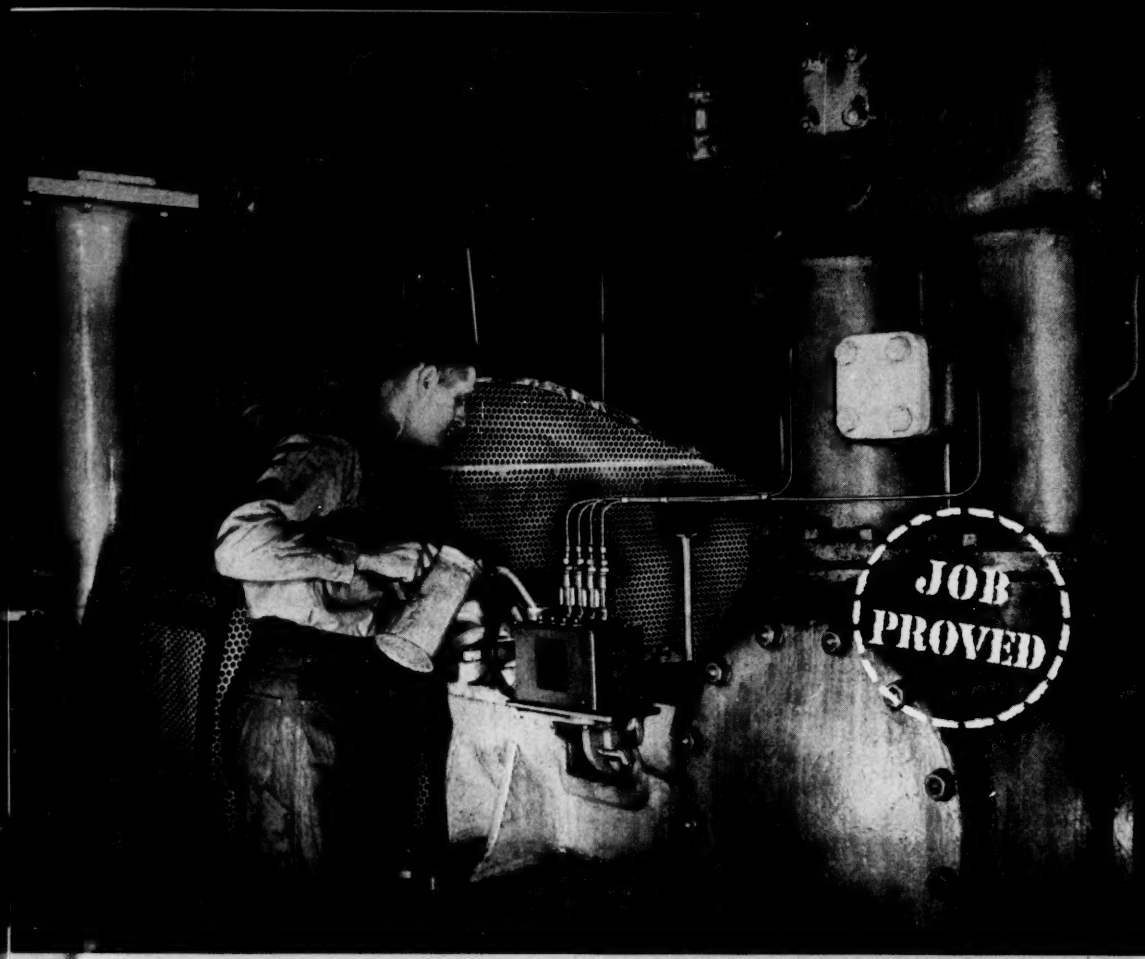
Recommended for ice freezing tanks and other refrigerating purposes where space is limited. The gas is quickly liberated and a high rate of heat transfer is effected.



INSTALL MODERN VOGT BRINE COOLERS

HENRY VOGT MACHINE CO., Inc., • • • • LOUISVILLE 10, KENTUCKY

Branch Offices: New York · Chicago · Cleveland · Philadelphia · Dallas



SUNISO SUCCEEDS AFTER OTHER OILS FAIL

Keeps Compressors Free of Sludge and Wax; Eliminates Complaints and Costly Maintenance

A firm engaged in constructing and servicing industrial refrigeration equipment had constant trouble with compressor oils. Every oil tried lost viscosity under high operating temperatures. All vaporized and formed sludge in the crankcases. At low temperatures they formed wax which gummed up the strainers and clogged the lines. Customer complaints were numerous and maintenance time costly.

Knowing of the low-wax-point reputation of Suniso Refrigeration Oils, the company called in a Sun Oil representative. He recommended the proper grade of Suniso. With the adoption of this "Job Proved" product, both low-temperature and high-temperature difficulties disappeared. From that time to this, two years later, the manufacturer has never had a single bit of trouble traceable to oil. His service calls are held to the very minimum and his customers are completely satisfied.

Results like this explain why original equipment manufacturers and service organizations rely on Suniso Oils for trouble-free service, under all kinds of operating conditions.

For your free copy of the illustrated booklet "Lubrication of Refrigeration and Air-Conditioning Equipment" write Dept. IR- 10.

SUN OIL COMPANY • *Philadelphia 3, Pa.*
In Canada: Sun Oil Company, Ltd.
Toronto and Montreal

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"JOB PROVED" THROUGHOUT THE INDUSTRY

SUNOCO®

VOLUME 119

ICE and Refrigeration

NUMBER 4

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October 1950

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- *bursting*
- *leaking*
- *spilling out*
- *melting*
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- *dirt*

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That's the easiest, most economical way to keep your product and service sold—
Printed bags "TELL" and "SELL."

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Control constantly, the exact humidity and temperature necessary to keep your products at perfection, and you've taken the short cut toward controlling profits.

From plants of all kinds, all over the world, come letters which report the efficiency-increasing, trouble-free operation of Howe Refrigeration Equipment. Designed out of 38 years of accumulated, field-proved knowledge, Howe equipment is ruggedly built, yet flexible to handle peak loads economically. Can be installed without expensive building alterations. Its low maintenance costs are proved . . . controlled!

Your surest, quickest, lowest-cost way to control your net profit is to install Howe Refrigeration Equipment, whether you need one compressor or a coordinated plant design.

For all your refrigeration problems consult Howe, since 1912 manufacturers of ammonia compressors, condensers, coolers, fin coils, locker freezing units, air conditioning (cooling) equipment. Write for descriptive literature.

A few distributorships are available.
Your inquiry invited.

OUTSTANDING COMPRESSOR FEATURES HELP KEEP COSTS DOWN

★ Oversize suction and discharge valves of ring plate design insure maximum performance with minimum servicing.

★ **Double trunk type pistons of special design which provides positive lubrication of all surfaces and does away with excessive oil pumping.**

★ Insert type nickel babbitt metal bearing accurately machined for easy repairs.

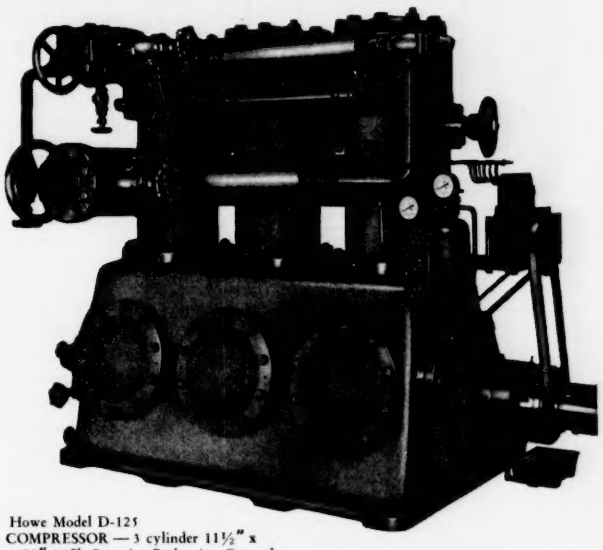
★ **Steel Connecting rods with piston clearance adjustment for maximum efficiency at all times.**

★ Hand-hole plates on both sides of crankcase simplify routine service work and inspection.

★ **Oil gauge glass on crankcase shows positive oil level.**

★ All parts are made to precision dimensions and are interchangeable.

★ **Crankshaft seal, oil sealed under pressure.**

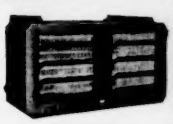


Howe Model D-125
COMPRESSOR — 3 cylinder 11½" x 11½" 50% Capacity Reduction Control
Standard Rating 125 Tons

Model 116
Single Fan Conditionaire

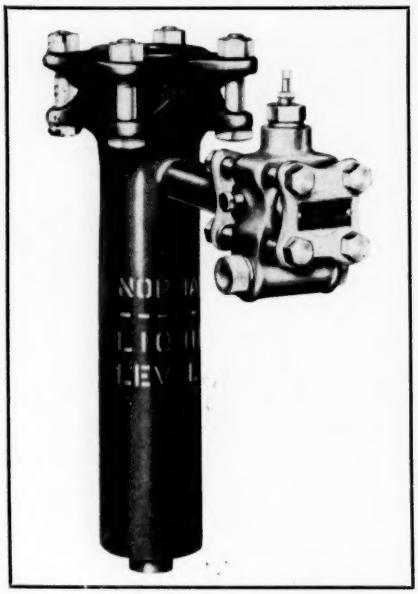
CONDITIONAIRE UNIT COOLERS

Ceiling type, for all commercial uses. Its all-steel, welded, hot galvanized coil is suitable for *any* refrigerant. Offers many plus features. Size for every need.



Model 216
Double Fan Conditionaire

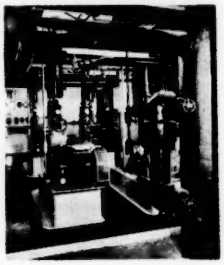
"a simple control is the best control"



WHEN the San Francisco plant of Golden State Company, Ltd., was remodeled to provide Automatic control of storage and freezer temperatures, Phillips No. 101 Remote Feed Float Controls were selected to tie in with the new automatic two-stage refrigerating machines. The direct expansion gravity coils in the low temperature rooms and the blower coils in the normal temperature rooms are supplied with the correct amount of refrigerant through individual Phillips 101 Floats.

Phillips products are recommended by leading refrigeration engineers where accurate refrigerant control is desired. Your plant improvement program also can profitably include Phillips Floats. Specify them for your next job.

Dual sets of Creamery Package Type K boosters and second stage compressors furnish the refrigeration capacity to maintain proper temperatures in the twelve rooms of the Golden State Company, Ltd., plant. This system maintains a wide range of temperature requirements—two rooms operate at minus 15 degrees, six at minus 5 degrees, and the others up to as high as 45 degrees.



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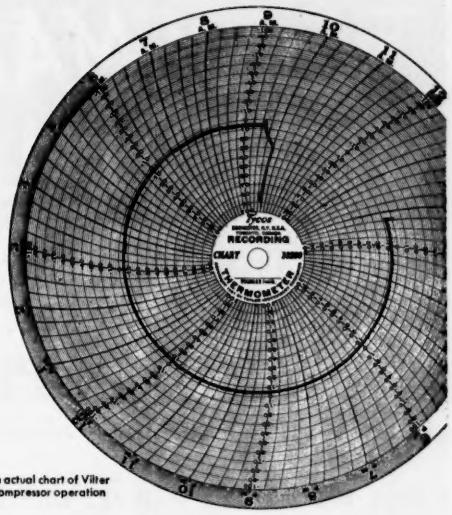
FLOAT CONTROLS

H. A. PHILLIPS & CO.—CHICAGO
DESIGNERS AND ENGINEERS
REFRIGERATION CONTROL SYSTEMS
8255 W. Carroll Avenue . . . . . Chicago 24, Illinois

after all, it's
RESULTS
you're buying



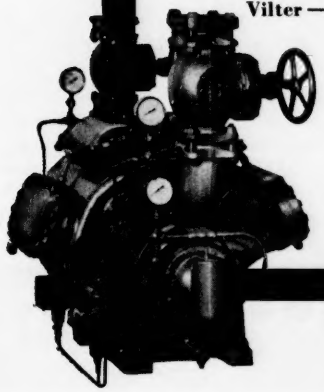
An actual chart of Vilter compressor operation

you get dependable, economical RESULTS —not just equipment—when you buy VILTER

When you buy refrigeration, it's results you're buying — cooling that holds low temperatures constantly, at lowest operating costs and with lowest upkeep expense. No chromium-plated gadgets or fancy sales talks can change that picture.

Vilter builds compressors — as well as most other refrigeration components — to give you the satisfaction you must have. Vilter-poured castings are finer-grained . . . Vilter workmanship is more careful . . . Vilter's inspection standards are higher; and they all combine to give you refrigeration that saves you operation, upkeep, and headache pill costs.

More than that, Vilter's interest in your installation never ceases. Trained Vilter sales engineers keep their eyes on your job, so that you get like-new efficiency and smoothness of operation year after year. Whatever your refrigeration needs, you can save money with Vilter — ask your nearby Vilter representative.



Vilter

REFRIGERATION and AIR CONDITIONING

THE VILTER MANUFACTURING COMPANY
MILWAUKEE 7, WISCONSIN

Ammonia and Freon Compressors • Pak Icers • Evaporative and Shell and Tube Condensers • Pipe Coils • Valves and Fittings

The *DEMAND* Is for QUALITY ICE

For Ice That Will Not Produce Slime In Ice Boxes...

Use DISTILEX This Way...

Dispense with Soda Ash, Sodium Aluminate, Alum and Similar Products . . . and

SIMPLY MIX DISTILEX WITH THE LIME YOU ARE NOW USING!

Block on left treated with Distilex, only one core emptied. Right, untreated water, cores were emptied twice. Most Distilex users do not empty cores at all.

RESULT . . . . High-grade Crystal Ice from raw water . . . Ice free from slime and deposits . . . Ice without color, odor, taste . . . Ice which can be produced at very low temperature* with no cracking while being frozen, dumped or cut.

***DISTILEX** treated water can make Ice in LESS THAN 25 HOURS at 10° brine temperature!

Test DISTILEX in your plant. If not entirely satisfied, purchase price will be refunded on all DISTILEX returned. $25.00 per 100 lbs., f.o.b. Birmingham.

Use SOLVEX for COMPRESSOR COOLING SYSTEMS

HIGH HEAD PRESSURES QUICKLY LOWERED with this remarkable chemical. SOLVEX can be quickly applied without breaking a joint. REMOVES RUST, SCALE, ALGAE, OIL AND ENCRUSTING MATTER from condenser tubes and water jackets in one to five days operation. Ideal for cleaning scale and corrosion from boilers, heaters and tanks.

An effective conditioner for spray ponds and cooling towers. SOLVEX goes to work immediately WITHOUT COSTLY SHUTDOWNS. Cooling efficiency is rapidly restored by using one pound per 10 gallons of water.

Write NOW for Further Particulars on These MONEY-SAVING AIDS TO BETTER ICE MAKING!

The CSCO STABLEIZER MAINTAINS GOOD BRINE by a positive reaction to either OVER-ACIDITY or OVER-ALKALINITY!

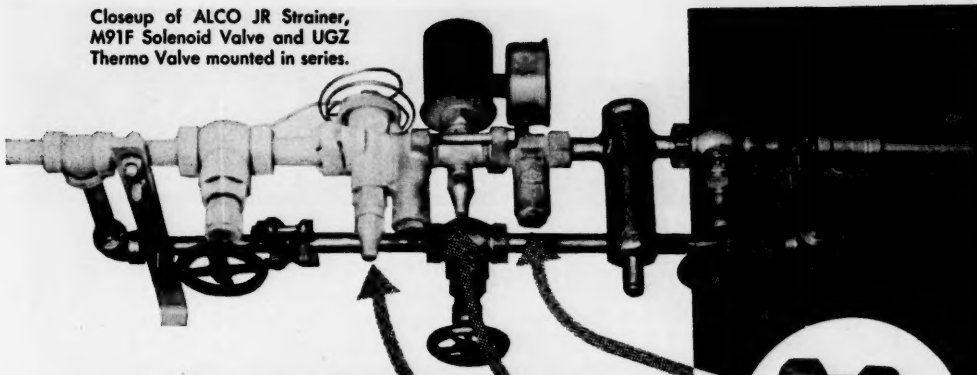
A scientific combination of pure metals upon which damaging materials in brine will "feed" in preference to the brine tank or ice cans, thereby SAVING them!

the CSCO STABLEIZER removes destructive material from the brine without adding harmful chemicals. Easily installed in all systems. No other brine treatment compares in SAFETY! The STABLEIZER does not make brine harmful to workmen's hands. PROTECTS AND PRESERVES EXPENSIVE EQUIPMENT!

CHEMICAL SOLVENT COMPANY

3005—16th Street North — Birmingham, Ala.

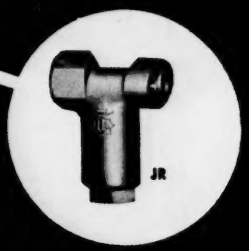
Closeup of ALCO JR Strainer, M91F Solenoid Valve and UGZ Thermo Valve mounted in series.

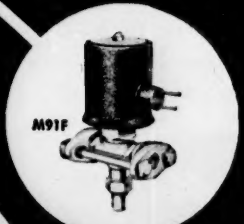


ALCO'S "ECONOMY PACKAGE" FOR AMMONIA CONTROL

Saves Pipe, Saves Space, Saves Labor, Saves Time, Saves Profit

Notice what a neat, compact installation it makes—an ALCO JR Strainer, M91F Solenoid Valve and UGZ Thermo Valve mounted in series and working in perfect harmony —to keep the coils in this meat cooler at peak efficiency.





Installation of the above controls for this meat cooler was made by Eastern Machine Works, St. Paul, Minnesota.

A QUARTER-CENTURY OF PIONEERING PROGRESS

ALCO VALVE CO.

835 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

SEE YOUR ALCO WHOLESALER

4445

INSTALLATION FILE NO. 1010

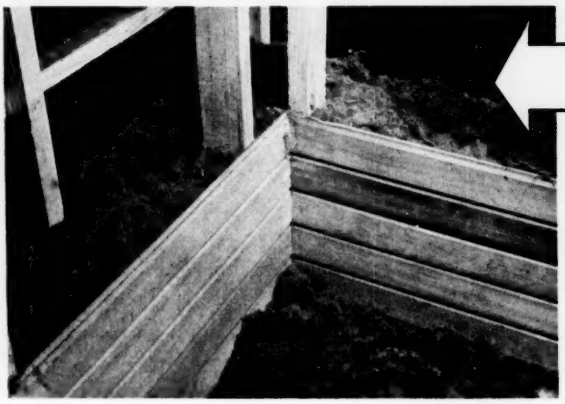
How to get maximum efficiency with PALCO INSULATION WOOL

THICKNESS OF PALCO WOOL INSULATION

Recommended

DETERMINING THICKNESS OF PALCO WOOL INSULATION

Comparing cost of refrigeration with cost of insulation determines theoretical ideal thickness of any insulation. Extremely high thermal efficiency of PALCO WOOL accounts for minimum thickness requirements. However, because of PALCO WOOL'S low cost, thicknesses greater than minimum requirements are warranted by continued savings in operating costs. For conditions requiring special treatment, The Pacific Lumber Company's Engineering Department will gladly furnish specifications.



Applied

TYPICAL INSTALLATION . . .

shows 12" thickness of PALCO WOOL during construction of freezer room. Resilience prevents possibility of settlement. Flameproofed protection, moisture resistance, odor-proof and vermin repellent qualities are also among reasons why PALCO WOOL is recommended as ideal food storage insulation.

FROM NATURE'S INSULATION · AGE OLD REDWOOD BARK · FLAMEPROOFED

Mail attached coupon today for more detailed information.

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35 EAST WACKER DRIVE, CHICAGO 1, ILLINOIS

THE PACIFIC LUMBER COMPANY
100 BUSH STREET
SAN FRANCISCO 4, CALIFORNIA

Please send me without obligation:

- ☐ PALCO WOOL COLD STORAGE MANUAL
- ☐ LOCKER PLANT PLAN AND CONSTRUCTION MANUAL

Name _____
Title _____
Company _____
Street _____
City _____ Zone ____ State _____

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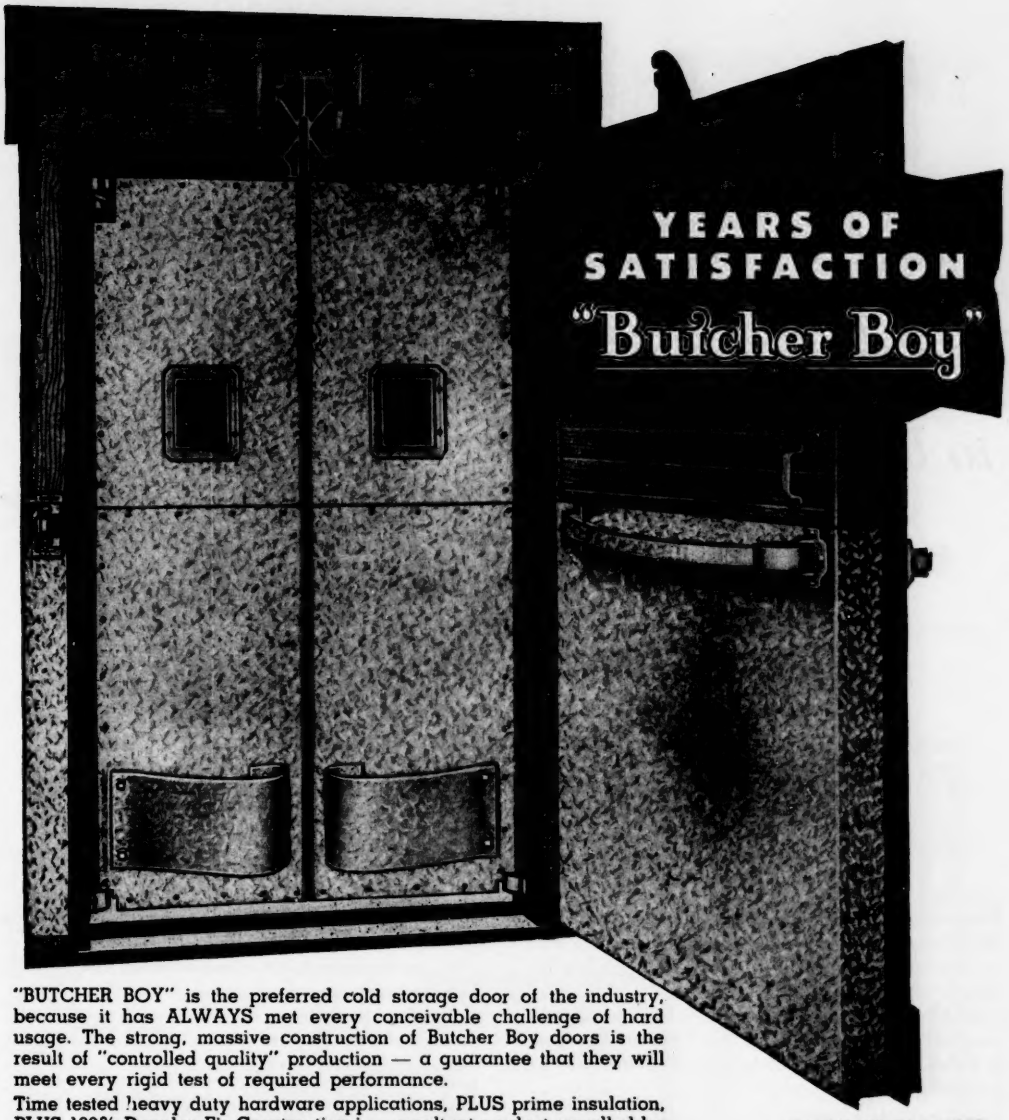


"BUTCHER BOY" is the preferred cold storage door of the industry, because it has ALWAYS met every conceivable challenge of hard usage. The strong, massive construction of Butcher Boy doors is the result of "controlled quality" production — a guarantee that they will meet every rigid test of required performance.

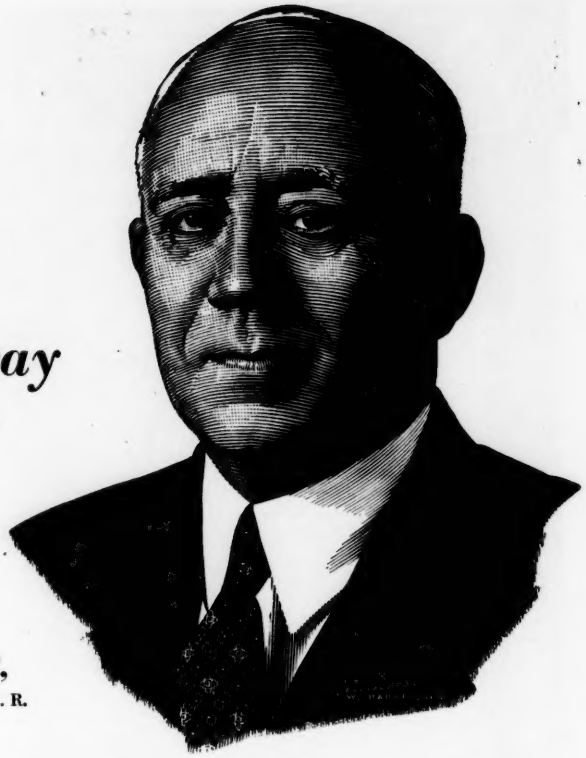
Time tested heavy duty hardware applications, PLUS prime insulation, PLUS 100% Douglas Fir Construction is a resultant product equalled by none — BUTCHER BOY. Write for free bulletins today.

VESTIBULE-TYPE TRACK DOOR

BUTCHER BOY COLD STORAGE DOOR CO.

170 N. SANGAMON ST., CHICAGO 7, U. S. A.

"The easiest way to buy Bonds..."



MR. MARTIN W. CLEMENT,
Chairman of the Board, Pennsylvania R. R.

"The easiest way to buy bonds is through the payroll savings plan. We on the Pennsylvania believe in that plan. Labor and management, officers and employees, over half of us are enjoying it. We believe that it is good for our country, that it is good for our company, and that it is good for ourselves and our families to have these savings."

Top executives of more than 20,000 large companies share Mr. Clement's conviction that the Payroll Savings Plan is good for the country, the company, the employees and their families.

Obviously it is good for the country. The monthly purchase of Savings Bonds by more than 8,000,000 Americans is building a huge fund of buying dollars that will be reflected in the sales curves of tomorrow.

And certainly it is good for the company. The employee who puts a part of his earnings in Savings Bonds *every month* is not the type of man whose name appears frequently on the absentee or accident records. Serious savers are serious—productive workers.

For the employee, the Payroll Savings Plan is a positive boon. It is the easy, automatic way for him to build financial independence, provide for the education of children or save money for a home.

If your company does not have a Payroll Savings Plan, here are two things you can do *today:*

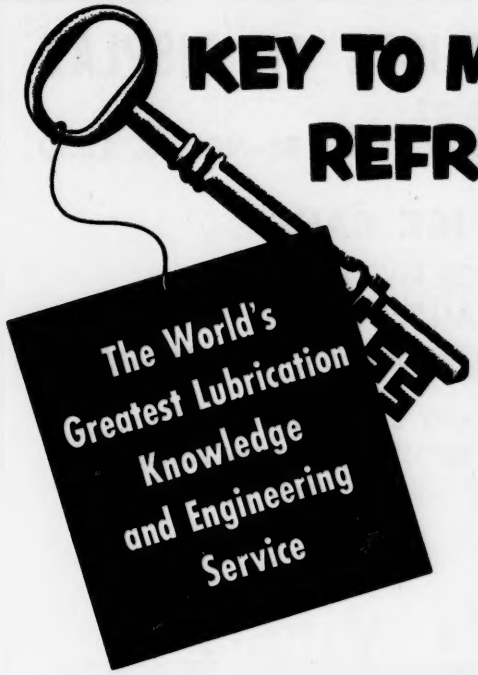
Appoint a Bond Officer, one of your major executives—the kind of man who picks up a ball and runs with it. Tell him to get in touch with the State Director, Savings Bond Division, U. S. Treasury Department. The State Director is ready with a package plan—application cards, promotional material, practical suggestions, and all the personal assistance your Bond Officer may need.

Then make a note on your calendar to check the status of your Payroll Savings Plan six months from today—and you will be surprised and gratified at the high percentage of employee participation you will find.

The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the G. M. Basford Company and

ICE AND REFRIGERATION

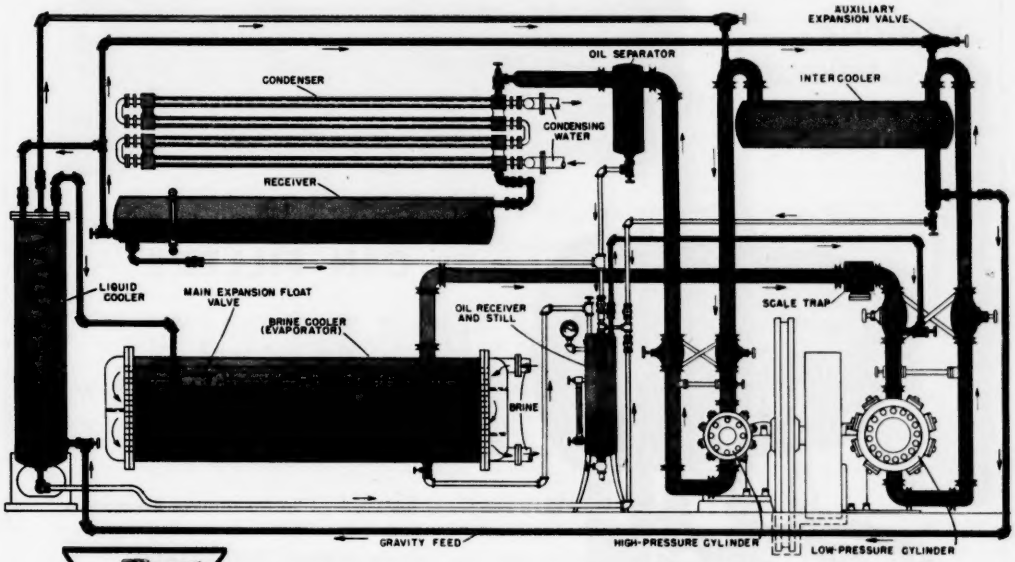
KEY TO MORE EFFICIENT REFRIGERATION!..



To get more tonnage at less cost from your refrigeration plant, the compressor oil you use must protect against wear and the formation of harmful deposits. Also, it must *not* impair heat transfer efficiency by forming films of congealed oil or gummy residues when carried over to other parts of the system.

Famous Gargoyle Arctic Oils have all these necessary characteristics. Products of 84 years of lubrication experience, these great oils are chemically stable, resist oxidation, have low pour points and are moisture-free. In thousands of plants their use has resulted in more continuous refrigeration at maximum capacity, reduced friction loss, less time and money spent on repairs and cleanings.

Enjoy all these advantages by giving *your* refrigerating compressors Correct Lubrication!



SOCONY-VACUUM
GARGOYLE
Lubricants

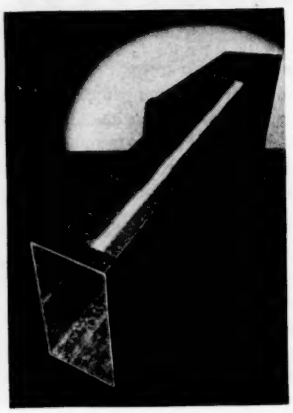
Socony-Vacuum
Correct Lubrication

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

KNICKERBOCKER PRODUCTS ON DISPLAY

BOOTH 21

N.A.I.I. CONVENTION — CHICAGO OCT. 31-NOV. 3, 1950



ICE CANS

WELDED OR RIVETED
IF IT IS AN ICE CAN
KNICKERBOCKER CAN CAN MAKE IT!

ANY SIZE — ANY STYLE
HIGH PRESSURE LOW PRESSURE
ARCTIC PAWNALL
ULINE BOTTOM

CAN GRIDS

VARIOUS—
DESIGNS
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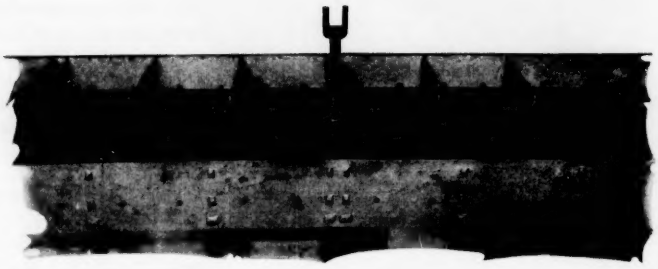

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Will not Leak.
Accurate measurement each filling.

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At Your Service — Representatives Everywhere

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- **Dependable & Trouble-free**
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- **Available**

See our Exhibit at the National

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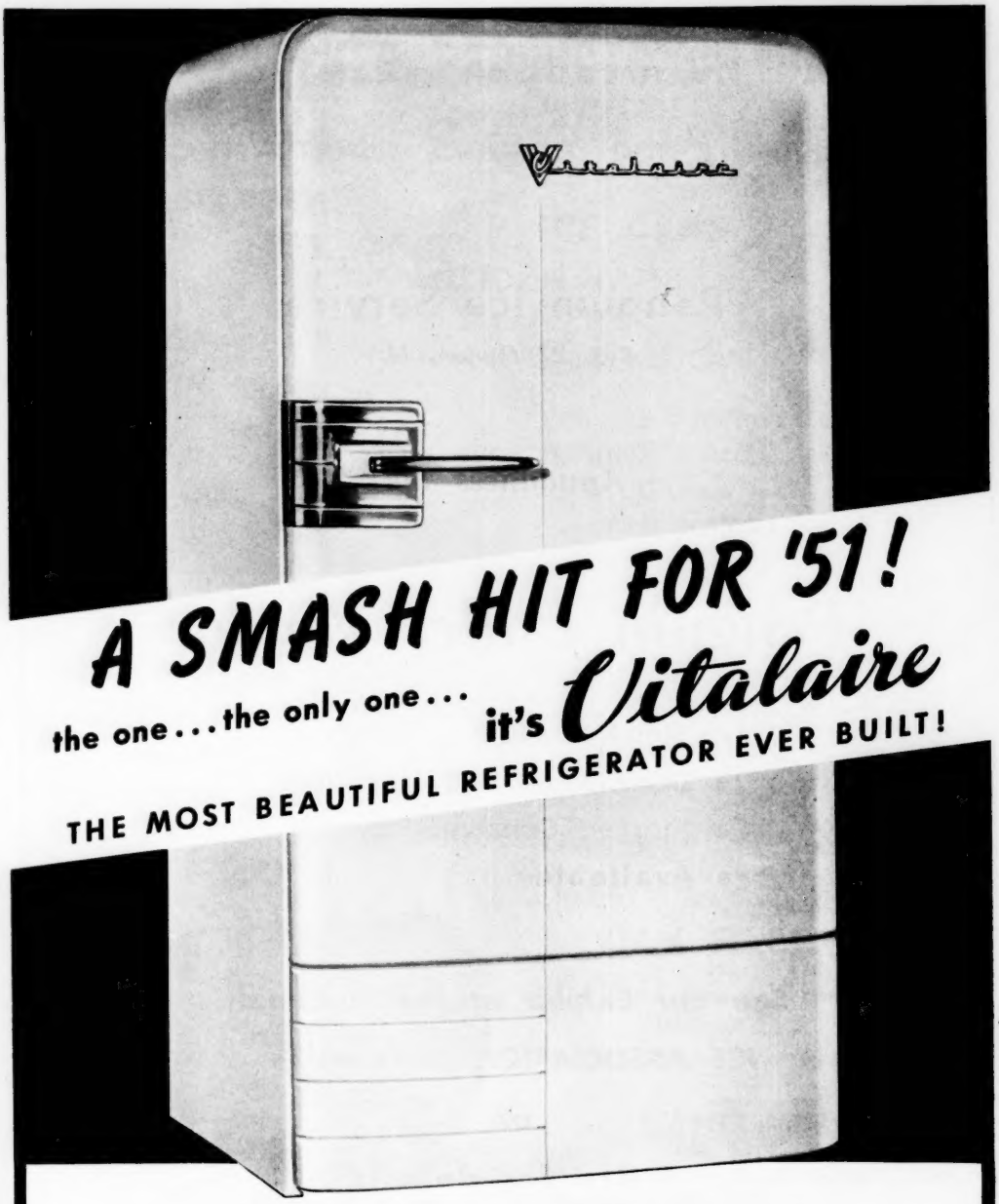


A SMASH HIT FOR '51!

the one... the only one... it's *Vitalaire*

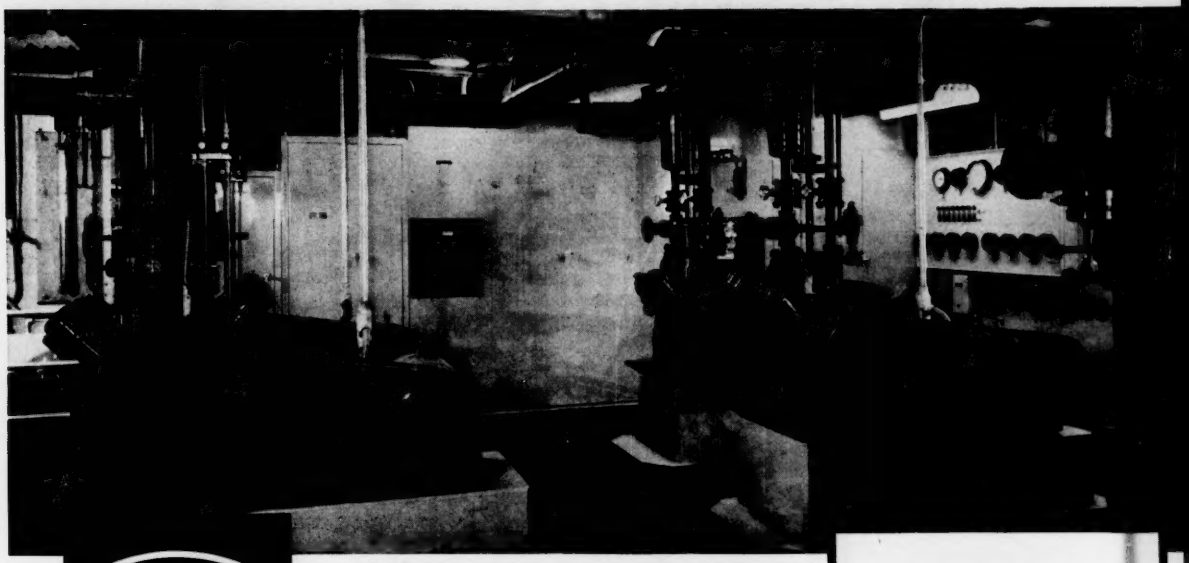
THE MOST BEAUTIFUL REFRIGERATOR EVER BUILT!

GREATEST VALUE IN REFRIGERATION
SEE AND SELL THIS BEAUTY... COME TO BOOTH NO. 12-13 NAII CONVENTION

ICE COOLING APPLIANCE CORPORATION

MAIN OFFICE and PLANT — MORRISON, ILLINOIS

Refrigeration Teamwork Pays Off



Multi-Cylinder Booster System Cuts Costs *Automatically*

at GOLDEN STATE COMPANY, LTD.

SAN FRANCISCO STORAGE PLANT

Two pairs of Creamery Package Type K boosters and second stage compressors and Intercooler at Golden State's San Francisco storage plant operate entirely automatically—save time, power and space.

Here is the newest in super-efficient refrigeration to meet *big* and *complex* requirements. The system was conceived and designed by the engineering department of Golden State Company, Ltd., in cooperation with CP engineers. Results achieved have fully realized expectations. (See adjoining column.)

This system is a good example of what happens when top-flight engineering calls upon CP's decades of experience to achieve more efficient, lower cost refrigeration.

For effective execution of a new refrigeration program—or improvement of existing facilities—teamwork with CP Engineers pays off! Check with CP now!

ANOTHER EXAMPLE OF CP COOPERATIVE ENGINEERING RESULTS

To the long list of notable achievements of CP cooperative engineering, add this one:

Provision of a complete and fully automatic refrigeration system at Golden State's San Francisco storage plant for 10 huge freezer and chill rooms —almost 11,000 square feet in area —with temperatures maintained at various levels ranging from 5 to 15 degrees below zero. So efficient is the system that *compressor operating time has been cut in half* . . . and manual attendance reduced to such routine chores as oiling.

Most Advanced System

The system is the most advanced available for low temperature storage.

Each pair of CP Boosters and 2nd Stage Compressors requires less horsepower than one single stage compressor large enough to handle the equivalent load. Eighty connected horsepower are doing the work that formerly required 110—and doing it better.

Automatic Electric Control

The electrical circuit system designed by CP and Golden State Engineers establishes an automatic sequence of operation that can be adjusted to time intervals up to 15 minutes.

Mercury switches stop and start compressors—control high pressure cut-out in case of water failure—oil failure or other difficulty.

Time delay switches—relay-controlled—function at 1½ minute intervals, during which oil pressure is built up. They then complete the circuit to magnetic switches governing operation of each compressor.

THE *Creamery Package* MFG. COMPANY

General and Export Offices: 1243 W. Washington Blvd., Chicago 7, Illinois

Atlanta • Boston • Buffalo • Chicago • Dallas • Denver • Houston • Kansas City, Mo. • Los Angeles • Minneapolis • Nashville • New York • Omaha • Philadelphia • Portland, Ore. • St. Louis • Salt Lake City • San Francisco • Seattle • Toledo, Ohio • Waterloo, Ia.

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THE CREAMERY PACKAGE MFG. COMPANY, LTD.
Mill Green Road, Mitcham Junction, Surrey, England

Extra Ice Sales . . . Extra Profits--
Automatically Yours!

with POLAR ICE VENDING EQUIPMENT

- **COMPLETE STATIONS WITH VENDORS**
- **VENDORS FOR YOUR PRESENT STORAGE ROOM**

The Twin cities, Minneapolis and St. Paul, have become the automatic ice vending headquarters of the world. More ice is sold here through automatic vending than any other place.

During the 1949 Christmas Holidays the sales of premium, or packaged ice cubes, was greater than at any other period during the year including 4th of July weekend which is considered the peak of the ice sales season.

More than seventy POLAR vendors in this area have proved that this modern method of merchandising ice is the way to slash your ice distribution costs and at the same time capture extra ice sales and extra profits—AUTOMATICALLY!

You too can protect your ice plant investment by installing POLAR equipment. It will pay for itself in a very short time and will give you years of excellent service. POLAR is the standard for quality in ice vending machines.

Check with users of POLAR vending stations for the FACTS. Come to our factory and see them built. Be our guest while you see and talk to the owners of POLAR installations in the Twin Cities.

While in Chicago for the N.A.I.I. convention, be sure to see us and discuss your ice merchandising plans.

VISIT BOOTHS 14 & 15 OR WRITE TODAY FOR COMPLETE INFORMATION

INSTALL POLAR EQUIPMENT—NOW! SATISFACTION GUARANTEED

REFRIGERATION ENGINEERING COMPANY

Box 337 • **Montgomery, Minnesota**

Pipe Coils • Direct Expansion Water Coolers • Shell and Tube Condensers • Industrial Unit Coolers • Oil Separators • Evaporative Condensers

LOCK-NUT CONSTRUCTION
Acme's exclusive Lock-Nut Construction of ammonia condensers makes it easy to replace tubes in the field. No special tools are required to replace; merely remove the gaskets, pull out the pipe tube and put in the new one. Write for descriptive folder.

Acme

AMMONIA CONDENSERS

Acme ammonia condensers are "TAILOR-MADE" to operate with available water temperatures and volumes. A full range of models, types and sizes (capacities from two-tons to 200-tons) permits exact specifications to fit practically every application or condition. Acme ammonia condensers comply with ASME Code U-69 and provide low-cost and lasting performance. For original equipment or replacement specify Acme. It's easy to select the right model from Acme Catalog 21-B. Write for yours today.

ACME PRODUCTS

ACME INDUSTRIES, INC.

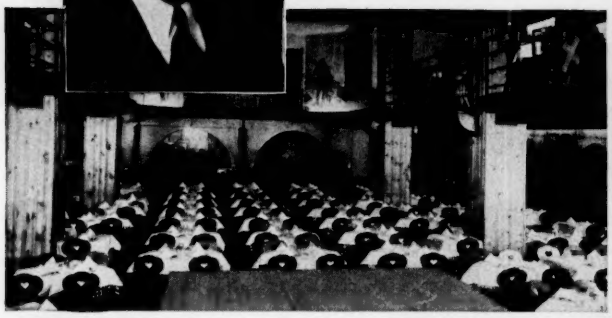
JACKSON, MICHIGAN

Representatives in Principal Cities

CONTINUOUSLY SERVING THE REFRIGERATION INDUSTRY SINCE 1919

"Your Ice Bag is a godsend...keeps ice 100% clean and sanitary"

reports Herman Pirchner of Cleveland's Alpine Village



Alpine Village, in Playhouse Square, is Cleveland's only theatre restaurant. For 15 years it has been known as the smart spot for fine food before and after the theatre.

Let the Union One-Trip Ice Bag Be Your Star Salesman

LIKE HUNDREDS of other leading restaurants, Herman Pirchner's famous Alpine Village buys processed ice from a company using Union Paper Ice Bags.

Let that be a tip to you! Stake a firm claim to the big users of processed ice by demonstrating the superior features of the Union Ice Bag.

Show how the wire tie locks out dirt, bars pilferage and spillage. Show how the double layer of wet-strength Kraft paper retards melting. Explain why icing from a handy paper bag and doing away with re-usable containers cuts labor costs.

Consider your own operation, too! Union Paper Ice Bags speed up handling at ice processor, loading platform, delivery point. You sell more ice at lower cost when you use Union Paper Ice Bags.

Wet-Strength Paper Ice Bags have tremendous strength even when soaking wet . . . thanks to a water repellent resin that binds the fibres of the paper firmly together.

ONE TRIP

UNION Paper Ice Bags

A product of the UNION BAG & PAPER CORPORATION • Woolworth Bldg., New York 7, N. Y.

Bags of Kraft, Transparent Films, Waxed Paper, Glassine, Laminates

In The Spotlight

OPERATING TIME was cut in half when the Golden State Company, Inc., of San Francisco discarded its old single-stage refrigerating equipment and installed multi-cylinder boosters and second-stage compressors and intercoolers. Through text and pictures a complete description of this improvement is given in the article starting on page 23.

REFRIGERATION is being used to cool aggregate and prevent undue heating of concrete in construction of dam on Missouri River. Ice plant provides ice. For story with pictures see article on page 27.

THE ECONOMIC CONTROLS Act passed by Congress gives President wide discretionary controls over prices, wages, defense contracts, labor disputes, virtually the same as during World War II. For outline of chief provisions, see page 28.

DEPRECIATION may be a hole through which valuable profits leak. This loss may be felt more keenly when the need of replacements arises. This subject is reviewed and some suggestions are offered in the article on page 29.

THE 1950 ICE CONVENTION will be held October 31 to November 3. The program will be highlighted by prominent speakers and departmental reports. For preliminary details see page 31.

CRUSHED ICE for fresh fish is an old story to Boston fishermen. Each year a vast amount of crushed ice is poured down the holds of vessels operating out of the fish pier of that city. A glimpse of this business, with pictures, is given in the story on page 45.

PROBLEMS of ice men and what some are doing about them are uncovered in a recent survey conducted by ICE AND REFRIGERATION. They are discussed in the article starting on page 35.

ICE provides the best refrigerant for foods and drinks. The Chicago market provides many good examples of such use by restaurants, taverns, retail chicken stores and fountains. See story and pictures on page 41.

A CHECK LIST for refrigeration plants with references and examples will aid refrigerating engineers in operating analysis. Such a check list, with explanations, is furnished on page 49.

THE N.A.P.R.E. Convention at Los Angeles November 28 to December 1 will present an engineering program of timely interest, along with new features and entertainment. For details see page 54.

A NEW HIGH for frozen fruits and juices was established by the 1950 pack which showed an increase from 525 million pounds in 1949 to more than 600 million pounds in 1950. Report is summarized on page 65.

NEXT MONTH: The November issue of ICE AND REFRIGERATION will feature a number of excellent articles on plant maintenance methods. Watch for this valuable material which is especially useful during the off peak season in refrigerating plants.

LETTERS

Founder Would be Pleased

I LIKE the new format of ICE AND REFRIGERATION very much; clear and legible, easily readable and very attractive. I especially like the page, "In the Spotlight" calling attention to articles contained in body of the magazine. You are covering the field in an admirable manner and are doing a good job of reporting.

I have been a reader of ICE AND REFRIGERATION since 1911. For a number of reasons, I feel a special interest in its welfare. It was my good fortune to know J. F. Nickerson, the founder of your publication, rather intimately and during the period of his life that I served the Illinois Association as Secretary he was most interested in my efforts and in the affairs of our Association. His interest in the Illinois Association was natural because he was its founder. I have before me a letter written by him to the members of the Illinois Ice Industry, dated September 2, 1908, calling an organization meeting which was held in the club rooms of the Great Northern Hotel, Chicago, September 10. He was a real gentleman, his contributions to the industry were many and of great value, the solid foundation which he laid and on which the success of ICE AND REFRIGERATION has depended, is a manifestation of his character. I am sure he would be pleased, were he here, to see that you boys who are now responsible for the publication which he founded, are alert to new methods and modern practices and through their adoption, continue the program of increased usefulness to the Ice Industry. Congratulations.

W. D. WRIGHT, Secretary,
Illinois Association of Ice Industries

A MERGER of the two frozen food locker associations was effected at a joint annual convention held in Chicago, September 10-13. For details see report of convention starting on page 67.

FROZEN FOOD locker plants have nearly doubled since midsummer of 1945, it was reported by a speaker at the National Frozen Food Locker convention.

A COLD STORAGE plant cooled with ice for storage of fruits is now in service at Reedley, Calif. The owners are specially pleased with its low cost operation. Details on page 61.

...is one way to bigger profits

Expensive "muscle power" in an ice plant is a continuous drain on profits as well as a man's constitution. It needn't be. Because a G-W slat conveyor is a big labor saver... moves bagged and cake ice around the plant or to delivery platforms in less time and with fewer broken cakes. That adds up to lower over-head—more sales—bigger profits.

G-W conveyors are designed to carry block or processed ice in bags on straight, curved or right angle sections, from room to room or the outside platform. Unlimited flexibility assures an arrangement to fit perfectly your plant layout.

A Gifford-Wood engineer will be glad to visit your plant upon request. He is ready to apply 135 years of ice handling experience to any problem you may have without obligation. Call him in—let him show you the G-W way to bigger profits.

GIFFORD-WOOD CO.

Since 1814

Hudson, New York

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Pacific Coast Representative:
WESTERN ICE EQUIPMENT COMPANY, 420 Market St., San Francisco 11, Calif.

6772

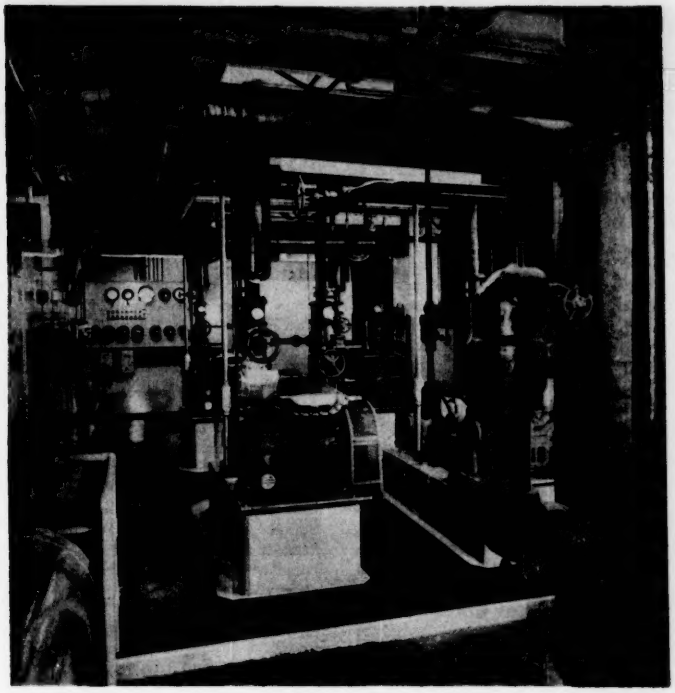
When You Think of Materials Handling, Think of GIFFORD-WOOD

CUTS OPERATING TIME IN HALF

Two pairs of booster and second stage compressors installed by Golden State Company, Ltd., San Francisco, provide automatic operation and reduces operating costs and time.

G. H. DELAUREUELLE

Chief Refrigerating Engineer
Golden State Company, Ltd.,
San Francisco, Calif.

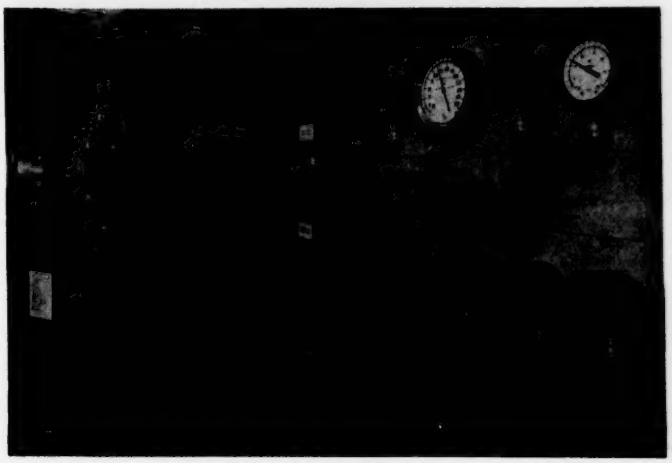


WITH the recent installation of two pairs of booster and second stage compressors, the refrigerated storage plant of Golden State Company, Ltd., San Francisco, major California dairy, now has a modern refrigeration system for low temperature storage. This installation is completely automatic as against former manual operation, and the low side has been improved. This, together with the inherently higher efficiency of a booster installation, has resulted in the operating time of the plant being cut in half.

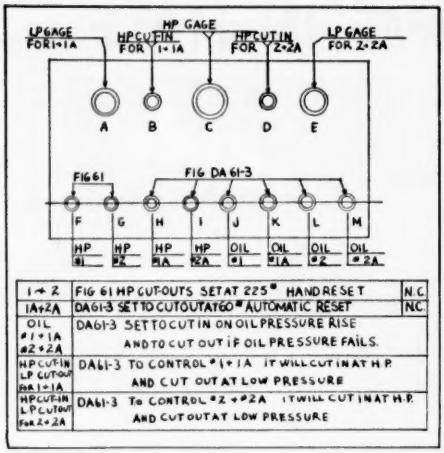
The compressors, which work in two stages, require considerably less horsepower to operate than do single compressors (40 hp as against 60 for one compressor and 40 hp as against 50 for the other), with a power saving of approximately 20 percent, and they require only one-fourth the space of single compression equipment. They are being used to refrigerate perishables at from 5 to 15 degrees below zero. Temperature variation is controlled to within three degrees.

Some time ago it was thought that one of the older freezer plants could be revamped by taking advantage of developments that had been made in

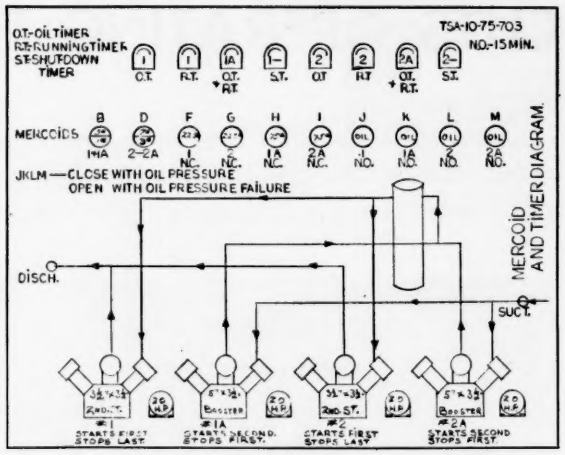
Pictured above are two pairs of multi-cylinder booster and second-stage compressors and intercooler, installed in refrigerated storage plant of Golden State Company, Ltd. This system is completely automatic and consumes less power than the old system which it replaced. It provides refrigeration for 10 freezer and chill rooms at temperatures ranging from 5 to 15 F below zero.



Right is the gage board panel adjoining the magnetic switches and controlling time switches. This shows gages, hand-off automatic controls and Mercoid switches that control the two sets of dual stage compressors recently installed in Golden State Company, Ltd. San Francisco freezer room.



The gage connections are shown in diagram with the details of the controls and their functions.



The arrangement of the timers and switches is shown above with the same identifying letters as at left. Below is a diagram of the refrigerating system hook-up.

recent years relative to the use of small multicylinder compressors. Originally the plant was designed as a brine system using calcium chloride brine circulated through pipes in all the rooms but two. Two 5,000 gallon brine tanks, with double pipe brine coolers, were used for cooling.

The brine tanks and coils were removed some years ago and were replaced with direct expansion ammonia coils throughout the entire system. The compressors that were used until recently were of 1910 vintage. They are horizontal double acting design, slow speed units, but they were dependable, and they were kept in good operating condition. They were equipped with modern Voss plate valves which gave them added service life.

One machine is a 11 x 18 in. horizontal double acting with a speed of 100 rpm belt-driven by a 60 hp motor. The other is a 9 x 15 in. HDA with a speed of 125 rpm belt-driven by a 50 hp motor.

The current in this district is 4 wire, 3 phase A.C. 60 cycles, with 120 volts for lights and 208 volts for power. The above machines have not been removed because, when it is necessary to defrost, one or the other is used to provide large volumes of hot gas.

The plant has a total of twelve cold rooms, aggregating 122,000 cu. ft. ranging from –15 to 45 F, depending on what products are being stored. Eight of the rooms are in the low temperature group, two of them for as low as –15 F, the others for –5 F. All eight rooms are equipped with 2 in. full flooded coils that are controlled with Phillips No. 101-remote feed float chambers. The other four rooms are equipped with direct expansion, thermally controlled blower coils. Previously all the rooms were controlled by hand expansion but they were recently changed to the controls listed above to tie in with the new automatic machines.

Building Construction

Our plant was built over what was once San Francisco Bay in the days of '49. It is only two blocks from Montgomery Street and three blocks from Portsmouth Square. The building is of reinforced concrete setting on piles. It is four stories in height and the cold rooms are located in the basement, first and second floors and one room on the fourth floor.

The two coldest rooms are located in the basement of the main building and what is unusual about it is that water entirely surrounds two walls and the floor. Effects of the water are kept out by the waterproofing that was done during its construction.

The main basement slab is about 15 in. thick, resting on piling. The next is a waterproof membrane on top of which there is a finished slab of concrete, 4 in. thick. The 6 in. of floor insulation is set in asphalt on top of this layer. The finished floor on top of the cork is 3 in. thick. The outside basement walls are surrounded by a tile wall, the inside of which is covered with a waterproof membrane. A concrete wall forms the inside.

This plant was built in 1910 and it has been in continuous use ever since. A remarkable feature is the way the Armstrong corkboard has stood all these years, because with the exception of the floors, the cork had been set in lime mortar containing a fibrous material, and the finished surface was of the same materials.

All of the other rooms are above ground level and have stood up well too. The original insulation is 4 in. thick also set in lime mortar. A few years ago the surface plaster was removed when 3 in. of sheet cork was added. This last layer was set in hot asphalt and the inside was then finished with cement plaster on chicken wire of 1 in. mesh.

New Machines Installed

The machines that were selected are the Creamery Package Manufacturing Company's model "K" compressors. They are of the four cylinder type and are designed to operate as dual compression units. Two are 5 in. bore x 3½ in. stroke, operating at 895 rpm. Two are 3½ in. bore x 3½ in. stroke, one operates at 700 rpm and the other at 635 rpm. They are operated as two separate units or pairs and for ordinary loads only one pair is used. When the incoming products demand more refrigeration both sets are used.

All of the above description about the operation is ordinary and many engineers are familiar with the simple applications. However, it has been necessary to give a brief synopsis so that the modern hook-up can be compared with it.

The new operation is fully automatic and the interesting feature about it is the electrical interlocking control and timing system. In order

to make it simple to explain, certain sketches and photos are a part of this description. The new system is divided into two units requiring duplicate interlocking controls that function in parallel or in series.

Controls

An electrical circuit system makes the entire refrigeration operation completely automatic. It requires attendance only for routine servicing chores such as oiling. This system of electrical switches, arranged in three panels, establishes an automatic sequence of operation that can be adjusted to time intervals up to 15 minutes.

The first panel consists of 10 mercury switches. The first two switches are arranged to start and stop the compressors. Two are for high pressure cut-out in case of water failure. Two are for intermediate pressure cut-out in case of failure of the second stage machine. Four are oil failure switches.

The first two Mercoid controls, while connected to the same suction line are separately connected electrically, each to its own set of machines. As shown in the accompanying diagram, the Fig. 61 Mercoids are each connected to its own machine, as are the next two DA 61-3-Mercoids which are set for a cut out pressure of 75 lbs. for the intermediate pressure. To do this the mercury tubes had to be reversed.

The next four DA 61-3 Mercoids are the oil failure switches and they are separately connected, one to each machine. Should oil failure occur on any machine of the set, the circuit will open, thereby shutting down the system. It will not start again because through a certain set of relays it will stay locked out until again started by hand.

One solenoid water valve is used for all four machines and one solenoid valve for the main liquid feed. The cold rooms are separately controlled by thermostats and solenoid valves. These act independently and are not connected with the main control system. The sequence of operation is done by the use of electric timers of which there are eight. Four of them are for operating sequence and four for oil failure control.

When refrigeration is called for, the first Mercoid cuts in, starting the second stage machine, the Marley Tower fan, the condenser pump, the water solenoid valve is opened to supply water for the oil cooling coils and the water cooled seal. The first timer is energized and if the oil pressure builds up within less than or up to 90 seconds, the booster or first stage then follows in sequence. When it starts, it opens the main liquid solenoid valve and its timer also is energized. Being set to 90 seconds, it gives ample time for the oil pressure to build up. Actually the pressure is built up in less than 30 seconds.

Under the system of operation, the machines will run for periods of one to two hours and be off for 30 to 45 minutes. The operating pressures are 1 lb. psi cut-out to 5 psi cut-in. Pressures are read on mercury manometers.

When the pressure drops to the low point and trips the Mercoid control, the booster shuts down first, at the same time shutting down the main liquid solenoid valve. The fourth timer is energized at this point and as it too is set for 90 seconds it permits the second stage machine to run for this period. At the end of the period, the Marley Tower fan, the condenser pump and the water solenoid valve are all de-energized until refrigeration is again called for.

Acknowledgment

Considerable assistance in the design of the operation sequence was provided by Leon Buehler, Jr., chief refrigerating engineer of the Creamery Package Manufacturing Company. With this help the services of Charley Barkis of the Enterprise Electric Company, San Francisco, was enlisted. Mr. Barkis is a qualified electrical engineer who worked out the control circuits.

Refrigerated Lines Cancel Shipping Service for Orange Concentrates

THE Refrigerated Steamship Line has announced that it has abandoned plans to operate its Florida service for the 1950-1951 season because "current international uncertainties" have created a shortage of refrigerated ships for domestic trades.

Ralph Keating, president of the line which is a subsidiary of United Fruit Company, said his company does not wish to start the service this fall and then stop it because ships are not available. The line has been employing United Fruit Company's refrigerated ships in the service while the parent company chartered other tonnage including foreign-flag ships for its services to Central American and Caribbean ports. Domestic shipping must be maintained with American-flag vessels.

With charters of foreign-flag refrigerated ships going "sky high" because of the Korean emergency, United Fruit is faced with the necessity of employing its own vessels in the foreign routes, thus forcing Refrigerated Line's decision, it was said.

The steamship service was resumed last season after being suspended because of rate discriminatory practices by railroads. During the November 1 to July 1 season the line maintained a schedule of two sailings a week and carried more than 43 percent of the Florida citrus fruit sold on the New York auction market during the last season.

The suspension will throw the heavy fruit traffic on the railroads which already are suffering a freight car shortage because of war and defense demands. The minimum load for freight cars has been raised to 525 boxes of fruit to help meet the added demand, it was reported.

The Jacksonville Precooling Company, subsidiary of the Refrigerated Line will continue to maintain service for the precooling and storage of perishable commodities in Florida.

Lack of Refrigerators Cause Food Poisoning in England

INCREASED food poisoning is reported in news reports from England. A campaign to combat this menace was opened at a conference on food and drink infection at the British food fair. Groups of housewives in various London suburbs meanwhile were continuing a boycott of dirty food shops.

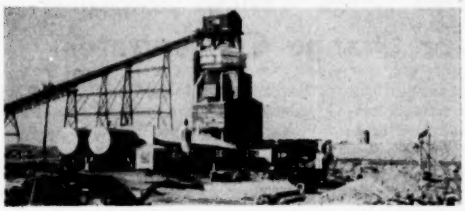
The number of cases of food poisoning has increased sharply since the war. Before the war there was an average of 50 outbreaks a year. There are now about 1,000 and many of these have proved fatal to entire families or groups having eaten the same food.

Infected foods are also directly responsible for an average of 3,000 infant deaths a year, according to Dr. Bernard Schlesinger of the Hospital for Sick Children in London.

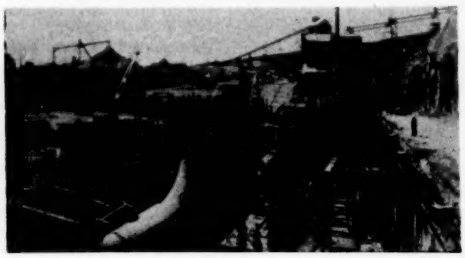
Prof. G. S. Wilson, director of the public health laboratory service, said that if foods could be kept in refrigerators during the summer, when bacteria multiply rapidly, the danger of poisoning would be greatly decreased. Refrigerators are still regarded as a luxury in Britain and are subject to a 100 percent purchase tax.

Construction Pictures, Fort Randall Dam, Missouri River

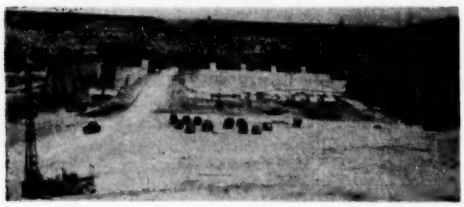
Primary Pool, looking upstream from Ogee section adjacent to "C" wall. In foreground 1½ in. steel reinforcing rod hooks extend vertically above bed-rock into 3-ft. concrete slab, extend downward 28 feet; on 4 ft. centers, grouted into bed-rock.



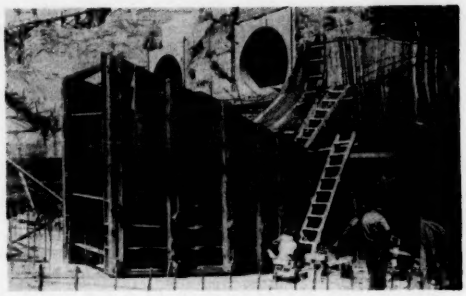
Looking southwest, McCarthy batch plant, power plant, ice plant and new ice bin and conveyor beyond truck and car. Conveyor carries up sand and gravel. Large pipes outside of mixing plant carry chilled air to gravel hoppers.



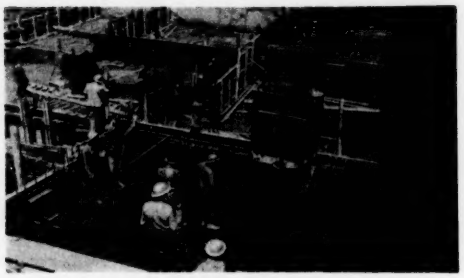
Powerhouse substructure, partially assembled draught-tube forms in foreground. In background is concrete mixing plant used to mix concrete for lining 12-22 foot tunnels.



General progress view of Downstream Outlet Works, "B" wall at left, Ogee section and secondary pool center, and "C" wall right. In far background are Tunnels 9 through 12. Tips of derricks working on inlet towers on upstream end of tunnels extend above top of dam-fill near top of picture.

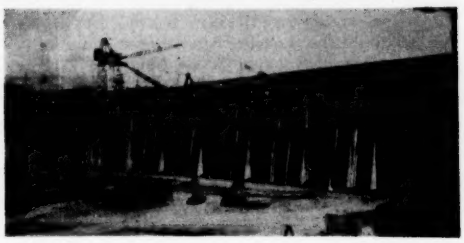


Aligning portion of draught-tube form for turbine No. 4 in powerhouse substructure at Fort Randall Dam.



Pouring concrete in powerhouse substructure. Steel reinforcing consists of 1½ in. steel rod on 12 in. centers, running horizontally at right angles.

Looking northeast—four draught-tubes forms in place, ready for pouring. Draught-tubes catch water after it has passed through turbines and conduct it out into tail-race and stilling basin below powerhouse.



Water-inlet gate towers on upstream end of tunnels. Will be about twice as full at completion as shown here. Only ten of the 12 gate towers are shown in this picture. Tip of derrick at left can be seen over top of dam.

Refrigeration Helps Build Dam

A huge rolled earth dam under construction on Missouri River near South Dakota-Nebraska line. Ice is being used to prevent undue heating of the concrete.

ARMIN DONEIS

Another service for ice has been developed in construction of the huge Randall dam on the Missouri River. To provide a constant supply of ice a new ice plant has been constructed on the site of the dam to deliver its entire output to the concrete mixers. In addition, five compressors supply refrigeration for air conditioning.

NEAR the point where the Missouri River leaves South Dakota and forms the South Dakota-Nebraska stateline, the U. S. Army Engineers have a spectacular project under way. As a part of the Missouri River development program a huge rolled earth dam is being constructed. The spillway, water outlet works and other portions of the structure are concrete. Refrigeration is employed to prevent undue heating of the concrete, of which more than one million cubic yards will be used.

The Fort Randall Dam will have a multiple duty: flood control, irrigation, navigation, power production and conservation of water for all purposes. In addition the 1,500 mile shoreline is expected to develop into quite a widely used recreation area.

Highways on Top

The crest of the dam embankment is 160 feet high and the length is almost two miles. Two U. S. Highways, 281 and 18 will traverse the roadway on the top of the dam. The width of the embankment at its base will be 1,600 feet.

The dam is designed so that the excavation from the spillway and the outlet works will be utilized in the construction. At the maximum the dam will have a storage capacity of 6.2 million acre feet. Only a portion of the water flow will be available for power production but the initial power plant will have a capacity of 160,000 Kw. with the ultimate capacity of double this amount. The water inlet to the power house and for regulating water flow consists of twelve concrete lined tunnels each 873 feet long with a finished diameter of 22 feet.

The spillway provides for safe overflow in case the water rises too high behind the dam. Of concrete construction, it is 1900 feet long and discharges downstream.

The work is being undertaken by four contractors. The Western Contracting Co. is engaged in moving mountains of rock and earth. The Silas Mason Co. of Shreveport, La. is cutting and lining the twelve 22 foot diameter tunnels. The Johnson-Winston Co. of Minneapolis, Minn. is building the intake structure with its twelve inlet towers, and the McCarthy Improvement Co. of Davenport, Ia. is constructing the powerhouse with its substructure, draught-tubes, tailrace and stilling basin.

Each contractor, excepting the first mentioned, has erected an immense concrete mixing plant here, capable of mixing from one to three thousand cubic yards of concrete per day. These mixers are controlled by some nine-dial Johnson Co. controls so arranged that the weighing, proportioning and mixing proceed automatically in two duplicate mixers, capable of alternately turning out a fresh 4-yard batch of concrete to specifications every 2½ minutes. In other words, while one is mixing, the other is being recharged with the automatically proportioned and weighed ingredients.

The Silas Mason Co. pumps all of their concrete over a quarter of a mile into the tunnels thru eight inch pipe by means of concrete pumps which move about one cubic yard per minute.

Aggregate is Air Conditioned

The aggregate lying in the direct rays of the sun in the outdoor stockpiles absorbs considerable quantities of heat, so an air-conditioning plant throws a blast of 34 F chilled air through the gravel hoppers in the mixing plants where the aggregate rests before being weighed into the mixers.

This air chilling installation consists, at each batch plant, of three fans with a total capacity of 61,633 cfm driven by a total of 90 hp. The air is chilled by an initial bath of ice-water sprays and then by four large finned tube Freon-12 evaporators. A bank of plate evaporators submerged in a chill-pit cools the recirculated spray water and also furnishes chilled water used in the concrete mix. Five General Electric, 8 cylinder, 875 rpm Freon-12 compressors driven by 50 hp motors circulate the refrigerant, in each of these rock-chilling plants.

Ice Plant Provides Ice

Directly associated with each of these three large batch-plants is also an ice plant which delivers its entire output straight to the mixers. One of these ice-plants comprises a 55 ton Vogt Tube-Ice machine, while the other two plants have 30 and 60 ton capacities respectively, of Vilter Pak-Ice machines. In these latter, a steady flow of a mixture of ice and water issues from the machines into pumps which lift the mixture some fifty feet straight up to the hoppers of the mixing plants where it falls on a screen, leaving the ice above while the water flows by gravity back down to the Pak-Ice machines to repeat the cycle and carry up more ice.

The ice so delivered is mixed directly with the other ingredients in amounts ranging from 35 to 75 lbs. of ice per cubic yard of concrete, depending on weather conditions and the government engineers' specifications. These usually call for a temperature not to exceed 55 degrees as the concrete is poured into the tremendous forms, to assure proper curing conditions and consequent greater density and strength.

To allow for uninterrupted operation of the Pak-Ice plants, an elaborate system of storage tanks, storage bins and auxiliary conveyors has been installed to store and handle the surplus stock of ice which is produced during interruptions in the concrete pouring program. In this way ample ice is always on hand to cope with peak demand and to allow a margin of safety in operations, avoiding a bottleneck in the flow of available ice.

Economic Controls Act

New Bill Passed by Congress gives President Authority to Exercise Broad Control over Prices and Wages

THE economic controls bill passed by the Senate and the House gives the President very broad authority to exercise far-reaching controls over prices and wages as well as most of the other powers he had requested.

It will be noted that the Act gives the President wide discretionary powers. His decisions as to when certain of these powers will be used, to what agencies he will assign regulatory functions, and the extent to which his power to control will be employed must of necessity come later. They are now "unknowns in the equation" because they depend upon the march of events, economic, political, and military. This much is quite clear: under the Act and subject to certain limitations, the President is empowered to impose virtually all the controls exercised during World War II. He may not find it necessary to exercise all these powers. The real point is that he has them if he needs them.

Priorities and Allocations

The President is vested with authority to require that defense contracts be given the "green light" over others. He can assign priorities and he can allocate materials and facilities so as to promote national defense and he can require acceptance of defense contracts by any person capable of their performance. Under severe penalties for violations, he can prevent hoarding. "No person," the Act says, "shall accumulate (1) in excess of the reasonable demands of business, personal, or home consumption, or (2) for the purpose of resale at prices in excess of prevailing market prices, materials which have been designated by the President as scarce materials, the supply of which would be threatened by such accumulations."—Sec. 102.

Note: Under this provision, the President could order a firm to produce a tank rather than a passenger car; and he could channel steel into production of guns rather than refrigerators. The anti-hoarding provisions, of course, will have to be spelled out by regulations. The Act requires the President to publish a list of materials which, under these provisions, cannot be legally accumulated.

Authority to Requisition

Under circumstances demanding it, the President is authorized to requisition property, or the use of it, upon payment of just compensation. He is required to determine the payment due as soon as possible; and there are provisions governing settlement in the event of disagreement. This is a "last-ditch" authority to be invoked when other measures have failed.

Expansion of Production Capacity and Supply

The President can make loans to private business firms for expanding production and developing processes for producing essential materials to speed up deliveries under government contracts. The Act now gives him authority to set up a revolving loan fund for this purpose.

Price and Wage Stabilization

Here Congress bestows on the President powers which he never requested. They can be exercised in several different ways:

(1) He can seek voluntary agreements to keep prices down and stabilize wages;

(2) He can invoke mandatory controls in a single industry, with the proviso that if prices are controlled wages must be too; or, finally,

(3) Under specified conditions, he can order blanket controls on prices and wages if conditions warrant them, but they can be exercised only through "a new independent agency created for such purpose." The President is ordered to impose over-all controls "whenever ceilings on prices have been established on materials and services comprising a substantial part of all sales at retail and materially affecting the cost of living."—Sec. 402 (b)(4).

With respect to the power to control selectively, the Act sets up certain tests to be met before action can be taken. "A ceiling may be established with respect to an individual material or service only when the President finds (I) the price of the material or service has risen or threatens to rise unreasonably above the price prevailing during the period from May 24, 1950 to June 24, 1950, (II) such price increase will materially affect the cost of living or the national defense, (III) the imposition of such ceiling is necessary to effectuate the purposes of this Act, (IV) it is practicable and feasible to impose such ceiling, and (V) such ceiling will be generally fair and equitable to sellers and buyers of such material or service and to sellers and buyers of related or competitive materials and services."—Sec. 402 (b)(2).

As to wages, it is important to note that "no wage, salary, or other compensation shall be stabilized at less than that paid during the period from May 24, 1950 to June 24, 1950, inclusive." Action taken in stabilizing wages must be consistent with the provisions of the Fair Labor Standards Act of 1938, as amended (Wage-Hour) and the Labor Management Relations Act of 1947 (Taft-Hartley).

It was indicated above that when the President exercises his powers to control prices selectively the Act requires him to control wages too. However, under certain conditions he might be able to fix price ceilings without fixing wage ceilings. Note the language of the following:

"In stabilizing wages . . . the President shall issue regulations prohibiting increases in wages, salaries, and other compensation which he deems would require an increase in the price ceiling or impose hardships or inequities on sellers operating under the price ceiling."—Sec. 402 (b)(5). In short, after fixing a price ceiling, it is conceivable that the President could permit wages to rise if he did not consider that such increases would increase prices or work undue hardships.

Regarding the reference period, May 24–June 24, 1950, if the conditions during that period were not representative, then some other period, nearest in date, affording generally representative conditions, would be utilized. In addition, the President is required to make adjustments in price, wage, and salary ceilings in order to prevent injustices. Certain commodities and services are exempted from price controls.

Settlement of Labor Disputes

This title provides for voluntary conferences to settle disputes affect-

(Continued on page 76)

Depreciation Is Costing You More

Most small businessmen will find it profitable to examine their depreciation procedure to see that they are charging enough. If not they stand to lose substantial sums.

ARTHUR ROBERTS

MUCH has been said and written during the past few years about the big profits earned by industrialists, but critics have overlooked the fact that because of the big increase in replacement cost on depreciable assets the profits shown on the books are inflated. To keep business operating efficiently many managements must either borrow for replacements, buy on time or dig into their working capital to make up the shortage in their depreciation reserves.

At a time when a war economy is on the march it is doubtful that the pricing structure will be able to absorb the higher charges for depreciation that the current cost of operating equipment necessitates, hence, management will be obliged to absorb some of this cost in one way or another, which is, in effect a charge-back against the profits earned in the seller's market, profits upon which the revenue department has collected a tax.

This is the enigma that confronts all businessmen, users of refrigeration included, hence, an exploration of the problem is of great importance to this industry. We find from our field studies that many people are not aware of the shadowy hazard lurking in wear, tear and obsolescence, hence, we offer this counsel to enable the reader to apply correctives where he can in order to minimize loss.

It is estimated that the reserve accounts in all industrial fields are short more than two billion dollars because replacement cost has jumped as much as 120 per cent above original cost. Where a management has considerable investment in depreciable assets, this may mean tapping working capital for a heavy sum in this buyer's market when working capital will be badly needed at one time or another to meet current obligations. The situation calls for constructive action now to prevent financial loss. Because of the increased cost of replacement equipment and the fact that this cost will remain high for some time, the business man should have a comprehensive understanding of all angles of this problem so that he can safeguard his working capital and profits when he buys replacements or expands operations.

Reports of public accountants and field studies on depreciation show that many business men are not handling their depreciation charge-offs properly and that they should check more carefully their methods of recording this expense on the books. Faulty depreciation practice may cause heavy losses and the impact may be felt more keenly when the need of replacement arises. Modern equipment is needed to keep costs down and the increased price of this equipment calls for higher depreciation charges. Carelessness in handling this important question may mean the loss of substantial sums. The highlights of this important subject as explored in this article should prove helpful to the manager of any business in cutting costs and maintaining maximum profits.

Depreciation Estimated

Depreciation is always an estimate. It is, for this reason, more troublesome than any other expense, even to the income tax department. In prewar days, many plants went wrong on their depreciation charge-offs, but then the loss was restricted to the difference between these charge-offs and the book value of the equipment at the termination of use. If a unit costing $10,000 was depreciated $1,000 a year, estimated life-span 10 years, and became obsolete or worn out in 7 years, the user had to write off a loss of $3,000 against surplus or net worth. The books showed that the equipment was worth $3,000 when it was scrapped.

In many plants in this industry, this hazard is operating today, as it always will, because depreciation is an estimate at best. However, were this all an owner had to worry about, he could make the necessary adjustments in time, but because replacement equipment has gone up as much as 120 percent above prewar cost, according to reliable estimates, he must dig up the additional funds when he feels it is time to modernize.

If an equipment user has written off $15,000, the original cost of certain units to be replaced, and he must pay $35,000 for these replacements, he must invest an additional $20,000 for which he has made no provision. To take all or part of this amount out of working capital may create an unsound financial condition. During the past year, an anaylsis of our survey work sheets shows that a number of operations were "caught short" this way. To get around this difficulty, some plants were buying their replacements on time and paying the installments out of the savings effected by the more efficient equipment.

Our field studies, however, turned up others who had purchased equipment some years ago and hadn't written it all off as yet. If our survey work sheets are any criterion, about 70 per cent are in this category. They have an opportunity to make adjustments now that will minimize the differential between the original cost and the higher replacement cost today. They may include a higher figure for depreciation in their current costs to line up with the increased cost of replacement equipment.

Increasing Depreciation Rates

By increasing the rate on depreciable assets now in work, a business can compensate for any difference between the rate originally set and the increased rate needed to meet the higher cost of replacements. This increase in depreciation expense is not deductible on the income tax return, hence, the books should show a separate account called, "Reserve to

cover increased cost of replacement equipment". By following this procedure, the businessman will increase the depreciation charge in his costs and the offsetting credits to his reserve accounts will come nearer to the cost of replacement equipment.

Reserve Account

Remember that reserves are only book figures created by charging profits for depreciation expense and crediting reserves. The purpose of a reserve account is to keep the surplus or net worth in proper perspective. On paper, the net worth or surplus is inflated if insufficient depreciation has been written off. However, an owner may show $25,000 in his reserves and not have a nickle in the bank. When he buys equipment he needs cash or credit. If his net worth is inflated because he has not written off enough depreciation to meet the higher cost of replacement equipment, he may not get credit and he may not have the cash.

Keep a depreciation schedule on each unit or group of similar units, the schedule showing original cost, date purchased, trade-in allowance, if any, estimated life-span, amount written off to date and unrecovered cost. The rate should be carefully set. Experience figures are good guides. The Treasury places strong emphasis on experience figures when determining allowable depreciation rates for income tax purposes.

If a user can show by the records that a certain unit lasted only six years, he will more than likely be permitted to write off the replacement in six years, even though the write-off may be higher than average. This is why it is important to maintain accurate depreciation schedules. From our field studies, we find that many firms lack such records.

Write off Units

Write off units individually or in groups of similar units. In many cases, we find that plants lose money by charging off a flat rate on all equipment, which differs, sometimes widely, in its ability to withstand wear and tear, or some equipment may be used much more than others, and so, the depreciation will be higher. If many units wear out faster than the composite rate, the user short-costs production and may pay an excessive tax. If a taxpayer takes too little depreciation under the known facts of prior years he cannot retrieve the loss in subsequent years.

The Straight-Line Method

There are six or more different methods of writing off depreciation. In this industry, 80 per cent use the straight-line method, if our survey is any criterion. Say the estimated life-span is 10 years, the equipment costs $25,000, estimated salvage value $500, thus $24,500 is written off in 10 years, or $2,450 a year. This is the simplest method, gets the same answer in the long run as more complicated methods and is most agreeable to the Treasury. If you are using any other method of charging off depreciation, you cannot change to the straight-line formula without the consent of the Commissioner of Internal Revenue. On new equipment purchased, however, you may use the straight-line method and we advise it.

There are several steps which aid the refrigeration plant to meet the problem of increased cost when worn out or outmoded equipment is replaced. Depreciation rates and charges should be based on sound knowledge of all the factors involved. Overall or group rates should be avoided and experience should be accurately recorded and given full weight.

Alert businessmen are campaigning for higher depreciation rates, double the current rate. Some say that the taxpayer should be allowed to write off depreciable assets in five years as he sees fit, that the uncertainties of business today make this desirable. R. G. Bloom of the Lukens Steel Company suggests that the depreciation charges on plants should be based on replacement values determined by a Government construction index prepared annually so that depreciation can be tied to the rise and fall in construction costs, that this will take the guesswork out of depreciation on plant construction.

There are index data in government agencies which could be used as impartial guides to allowable depreciation deductions on operating equipment. The Department of Labor, for example, maintains index numbers, by years, covering equipment in 143 industries; many index series of this kind are published in the Survey of Current Business and their validity could hardly be questioned by tax agencies.

Research Data on Depreciation

The Controllers Institute of America, the national professional society of business controllers has research data on depreciation resulting from fourteen studies, which they say, could be used to permit more realistic write-offs for wear and tear, to gear depreciation to current dollar value as distinguished from the dollars originally spent, and provide a better means of establishing fair depreciation write-offs than an arbitrary rate. It would be something like the arrangement of parity prices for farmers.

In exploring this subject, manufacturers, cost accountants, and bankers were consulted. Manufacturers were in favor of the change, but some accountants pointed out that if depreciation were accelerated in boom times, the business would suffer from inadequate depreciation charges in poor times and not build up satisfactory reserves. Proponents contended that high depreciation charges during boom times deflate the boom and ease the bust in hard times because they tend to lessen the necessary capital charges which must be added to costs during poor business periods.

This contention overlooks the fact that depreciation charge-offs should reflect wear and tear, not economic cycles, that the lower write-offs when business is in the low brackets and the dollar is in high may result in a substantial unrecovered cost on the books when the equipment is ready for the scrap heap.

In effect, say the opponents, this means that the business has been using up its equipment faster than it has recorded depreciation on the books, it has not charged up enough depreciation in its costs, selling prices have been inadequate, purchasers have not paid enough to cover actual wear and tear, the business has short-changed itself on profits. Moreover, if the rate is below actual wear and tear when times are bad, the profits are higher on paper and the business pays an excessive tax when it can least afford it.

Average Life of Machinery

The average life of machinery in this industry is about 20 years, somewhat less if high-speed compressors are used, somewhat longer if compressors are low speed. This is the composite life of all equipment when averaged, but the depreciation on the

(Continued on page 70)

THE ICE INDUSTRY

NATIONAL ASSOCIATION OF ICE INDUSTRIES

Executive Offices
1706 L St. N. W., Washington, D.C.

Executive Secretary
Mount Taylor, Washington, D.C.

President
H. O. McLain, Chicago, Ill.

First Vice-president
E. F. Condon, Los Angeles, Calif.

Second Vice-president
Wm. J. Ayers, Memphis, Tenn.

Treasurer
Geo. Steers, Jr., Kalamazoo, Mich.

THIS MONTH IN BRIEF

The National Association of Ice Industries will hold its annual convention at Chicago, October 31 to November 3. High lights of the program will be provided by nationally known speakers.

National Ice Advertising for 1951 offers an outstanding public relations program, retaining publicity activities in all media that has proven valuable in previous years.

A survey by ICE AND REFRIGERATION reveals some of the outstanding problems in the ice business and what ice distributors generally are doing to meet them.

Many of the bigger, better established Chicago restaurants and other commercial users continue to use ice as the most economical and efficient refrigerant for foods and drinks. They are satisfied with their present ice service and have no intention of installing their own ice-making gadgets.

Each year a vast amount of crushed ice is poured down the holds of fishing vessels operating out of the Port of Boston. From many year's experience these fishermen know that nothing preserves fresh fish as perfectly as ice.

1950 ICE CONVENTION

Previews of program shows nationally prominent speakers and reports on projects by association departments

THE feature address on the second day's program at the National Association of Ice Industries 33rd annual convention at the Hotel Sherman, Chicago, will be made by U. S. Senator Harry Flood Byrd (D., Va.).

In addition to the Senator, icemen will hear from two nationally prominent businessmen: Clayton Rand, editor, author, columnist and speaker; and J. A. Livingston, business analyst and author of the syndicated newspaper column, "Business Outlook."

"Icemen who come to Chicago for this convention," says Mount Taylor, NAII Executive Secretary, "will find every session brief and to the point. Guest speakers are indeed outstanding in their fields. It is gratifying to know that such prominent speakers as Senator Byrd, and Messrs. Rand and Livingston have accepted invitations to address icemen during these critical, uncertain times."

Mr. Taylor also remarked that since 1950 has been a poor year for ice companies due to the nationwide prevalence of below-average temperatures, it will be of particular importance for them to get the helpful merchandising ideas which will be set forth at the convention. Now, more than ever, he declared, icemen must unite for the benefit of the entire industry.

Preview of Program

A brief preview of the entire program, outlined below, will assure every convention-goer that the committee has planned a series of dynamic sessions.

Icemen are familiar with the forceful, at times humorous, means that President Harold McLain employs in expressing himself. His first-day talk will start things off in an enthusiastic manner.

News Flash

Fleet Admiral Chester W. Nimitz will speak at the National Ice Convention Friday, November 3.

The Research and Engineering Department has three vitally important projects to outline. Each one offers icemen a method of producing new volume next year. Topics to be discussed include the following: the results of a survey to determine the best means of locating ice vending stations; a sweet corn icing project; and what icemen can do with the icing of meats.

The Personnel Training and Marketing Department will make a radical departure from the usual method of presenting its part of the program. The department will stage a surprising skit to keep icemen informed about changes in merchandising tactics. It is scheduled for the second day's program.

Naturally, everyone wants the details of the Public Relations Program for 1951. A report on what has been accomplished and what can be expected next year is in the offing. Without being specific, it is safe to say that advertising and publicity plans for 1951 will please icemen everywhere.

On the afternoon of the second convention day, a merchandising forum will be sponsored by the Personnel Training and Marketing Department. Positive examples of successful efforts in creating new markets for icemen's ice will highlight the forum. Out of the program icemen can also expect to learn of new diversified lines which they can expect to get into to make more money.

The Association's legal counsel, William T. Jobe, will give an up-to-

the-minute report on Wage Hour, as well as pertinent facts of legislative and administrative developments from Washington of interest to icemen. In view of the possibility of wartime controls and wartime demands, his analysis of the situation on Capitol Hill should call for an eager audience.

Senator Byrd Prominent

A native Virginian, Senator Harry Byrd has spent his entire career in that state. He entered the business world in 1915 and gained prominence as a lawyer. In 1926 he was elected Governor and served for one term. (Virginia Governors are not permitted to succeed themselves according to law.) When a replacement was needed to fill the unexpired term of Senator Claude Swanson, Harry Byrd was the popular appointee. Each succeeding year he has been re-elected with, for the most part, support from both Democrats and Republicans.

When Senator Byrd appears before the NAII convention he should feel "right at home," for he is an iceman himself. Besides owning the Winchester Cold Storage Company, this renowned statesman is also publisher of two newspapers—The Winchester Evening Star and the Daily News Record of Harrisonburg, Virginia. Both he and his brother, Tom, are two of Virginia's largest apple growers. Another brother, Admiral Richard E. Byrd, needs no introduction to icemen.

Clayton Rand—Author And Speaker

A product of hard knocks and rich experience best describes Clayton Rand who was born in Wisconsin and reared in Mississippi. He attended Harvard Law School and was admitted to the Mississippi bar. After practicing law for a few years he bought country weekly newspapers. In all he has owned five papers. Now he owns the Dixie Press and is editor of the Dixie Guide at Gulfport, Mississippi.

In 1928 he won an all-expense tour to Germany for editorial achievement. Three books written by him have received wide distribution. He is probably the most articulate editor in the nation. For years he has been a popular convention, after-dinner, and conference speaker. He speaks the language of those eager to stimulate the American way of thought, according to his listeners. Others describe him as dynamic, inspiring, and humorous.

J. A. Livingston—Business News Analyst

One of the greatest assets of "Joe" Livingston is his almost uncanny ability to take a set of complicated business facts and present them in words that flow smoothly and easily, thus making them of interest to everyone. For a time he was an economist for Business Week, writing two weekly articles—"Trend" and "Outlook."

In 1942 he was requested to write a weekly confidential summary of War Progress for the War Production Board. Distribution of his report went to a highly restricted list of officials in the Army, Navy, WPB, OPA and other top war agencies. Mr. Livingston has written many articles for magazines such as Saturday Evening Post, American Mercury, Advertising and Selling, Sales Management and Nation's Business. His syndicated column currently runs in over 60 leading newspapers in America.

Hotel Reservations

Icemen planning to attend the 1950 NAII convention in Chicago are urged to make their hotel reservations there as far as possible in advance. A spokesman for the National Association warns that not only is a large attendance anticipated at the Ice meeting, but that other conventions will be in session in the Windy City during the same week, and accommodations are certain to become scarce.

The combination of Chicago's central location, the importance of this year's gathering in the light of current events, and a particularly outstanding convention program is expected to lure many new faces to the Oct. 31-Nov. 3 get-together, declared the spokesman. The four-day session gives promise of being both entertaining and profitable, and right now is the best time to get confirmatoin of staying quarters.

Unit Secretaries To Meet With Ice Convention

THE annual meeting of the Unit Association Secretaries affiliated with the National Association of Ice Industries will be held in conjunction with the annual ice convention at the Hotel Sherman, Chicago. The meeting will be held Tuesday morning, October 31, the first day of the convention. V. A. Esphorst, chairman of the group, promises an interesting program.

Exhibitors at National Ice Convention

A VERY important source of information will be furnished, as usual, by the exhibitors at the annual convention of the National Association of Ice Industries to be held at the Hotel Sherman, Chicago, October 31 to November 3. They will all be located in the exhibit hall of the hotel, adjacent to the main meeting room. The latest report is that 31 concerns had reserved space. Following are the list of exhibitors as of late in September:

Exhibitors

American Ice Pick Co., Philadelphia, Pa.
Bateman Foundry and Machine Co. Inc., Mineral Wells, Tex.
Sam Bonart Uniforms, Inc., New Orleans, La.
Chemical Solvent Co., Birmingham, Ala.
F. B. Dickinson & Co., Des Moines, Iowa.
Frick Co. Inc., Waynesboro, Pa.
Gifford-Wood Co., Hudson, N. Y.
Ice Cooling Appliance Corp., Morrison, Ill.
Ice Plant Equipment Co., Philadelphia 25, Pa.
Index Coupon and Supply Co., La Porte, Ind.
Infilco, Inc., Chicago, Ill.
Knickerbocker Stamping Co., Parkersburg, W. Va.
The Lilly Co., Memphis, Tenn.
Jos. A. Martocello & Co., Philadelphia, Pa.
National Rejectors, Inc., St. Louis, Mo.
Niagara Blower Co., New York 17, N. Y.
The Ohio Galvanizing & Mfg. Co., Niles, Ohio.
Penguin Ice Service, Marion, Ill.
Pittsburgh Waterproof Co., Pittsburgh 22, Pa.
Progress Refrigerator Co., Louisville, Ky.
Refrigeration Engineering Co., Montgomery, Minn.
Rex Engineering & Sales Co., Oklahoma City, Okla.
Sanitary Equipment Manufacturing Co. Inc., St. Louis, Mo.
Southern Advance Bag and Paper Co. Inc., Boston, Mass.
Thermo Cuber Co. Inc., Chicago, Ill.
Trusty Manufacturers, Inc., La Porte, Ind.
Union Bag and Paper Corp., New York, N. Y.
United Ice Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.
J. H. H. Voss Co. Inc., New York, N. Y.
Western Underwriters Assn., Chicago, Ill.
York Corp., York, Pa.

Tips on Selling Ice to Military Establishments

WITH the re-activation of army posts, camps, and stations air bases, and navy shore establishments, the sale of ice to military installations will be of increasing importance. A bulletin issued by the National Association of Ice Industries gives some information that will be of help in developing this business.

Such sales are on a local basis. The contracting officer at each station is empowered to advertise for bids and enter into contracts for the supply of ice. According to information furnished by the Office of the Quartermaster General, the contracting officer must secure bids in a number "reasonable" under the circumstances.

In a recent news release, the Department of Defense had this to say to businessmen: "For information on bids and awards go to the military field procurement offices, or to nearest Department of Commerce field office, or to one of the many Chambers of Commerce and other offices which are cooperating in making this information available."

Contact Military Posts

We suggest that, if there is a military establishment in your locality and if you are interested in this ice business, you should get in touch with the contracting officer at the installation. He will give you the detailed information necessary to placing your bid.

It is important to realize in this connection that ice is not excluded from coverage under the Walsh-Healey Act by the regulations relating to perishable commodities. The Walsh-Healey Act, governing the wages, hours, and working conditions of employees of firms selling to the government, will apply during the performance of the contract if the contract in question is for an amount exceeding $10,000.

The minimum wage under Walsh-Healey for the ice industry is the same as that required by the Wage-Hour Law, namely, 75 cents per hour. Walsh-Healey differs from the Wage-Hour Law with respect to maximum hours. Under Wage-Hour the maximum number of hours is forty per week; whereas, under Walsh-Healey the number is eight hours per day. In other words, under Walsh-Healey time and one-half for overtime ($1.12½) applies after eight hours of work have been performed each day, while under the Wage-Hour Law overtime applies only after more than forty hours of work have been performed in a single week.

Ice Advertising for 1951

THE 1951 Public Relations Program of the National Association of Ice Industries will be outstanding in every respect, reported George Steers, PR department committee chairman, at the close of a two-day meeting held in Chicago last week.

Mr. Steers' remarks took on added significance when it was revealed that icemen will be requested to invest less this year to support the Public Relations Program. He announced that at the NAII Executive Committee meeting, held the week before, it was decided to ask cooperating companies to subscribe 1½ cents per ton, based on 1949 tonnage. He also stated that a working budget of $300,000 had been authorized.

The PR Department Committee, recently appointed by association president Harold McLain, met to determine ways and means of setting in motion a sound public relations program for 1951.

It was the general consensus of the meeting that in view of current world conditions the economical element of the program was very much in order. Those present expressed the opinion that more ice companies than ever before would be encouraged to lend their financial support to the 1951 program in view of the 1½ cent investment instead of 3 cents called for in previous years. All of the committee were enthusiastic at the prospect of increasing the number of ice companies taking part in the public relations program.

Programs Presented

Several commercial and consumer advertising programs were presented by the advertising agency, represented by Messrs. E. J. Churchill and Lewis B. Kaufman of Donahue & Coe. Naturally, it is too early to report on the size and scope of the 1951 advertising program, but at the close of the sessions there was no doubt in anybody's mind that the 1951 advertising would compare favorably with that of any year in the past. Many felt that it would top the current program which has not only challenged the attention of the public but has brought wide praise throughout the industry. "After all," said Mr. Steers, "that is only to be expected with a capable and experienced staff, operating committee and advertising agency behind the program."

Publicity activities in all media will continue as usual.

The present Public Relations Department Committee consists of the following: George Steers, Chairman, D. J. Copeland, Vice Chairman. P. H. Andres, W. J.Ayers, T. J. Beck, W. B. Blessman, E. L. Gunn, Jr., H. G. Hacke, R. C. Muckerman, O. A. Reardon, L. L. Swartz.

An Operating Subcommittee of Messrs. T. J. Beck, W. B. Blessman and E. L. Gunn, Jr., will work out the details of the program with the advertising agency. Mr. Gunn continues as chairman of this Subcommittee.

A Finance Subcommittee consisting of D. J. Copeland, W. J. Ayers, R. C. Muckerman, O. A. Reardon, and L. L. Swartz will continue to have charge of the raising of funds. Mr. Muckerman, spokesman for the committee which met briefly, said, "This year the campaign for funds will be different and interesting and there will be lots of surprises."

The NAII staff was represented at the meeting by Guy W. Jacobs and F. X. Timmons.

Rhode Island Ice Companies Form Joint Sales Effort

A SEPARATE corporation called the Ice Sales Co. Inc., has been organized at Providence, R. I., by George R. Holmes Ice Co., the Rhode Island Ice Co., and the W. D. Chafee Ice Co. Sales and service rooms have been opened at 87 Winter St., at Broad. Raymond T. Wilber who is also secretary of the New England Ice Association is executive vice president of the new organization. Purpose of the new corporation is to improve ice delivery service and institute an effective sales program for selling refrigerators and other ice-using equipment.

The Story of Ice Will Be Told to Grade Pupils

WRITTEN expressly for the ice industry by an expert in the teaching field, an eight-page insert on the use of ice in language specially adapted to grade school pupils, will be included in The Grade Teacher, ready for distribution in September.

Every important phase of ice history, past and present, is included and each page is illustrated with photographs and drawings to show the ice industry with its best foot forward. Reprints of the complete insert are now available for local distribution by icemen.

The Ice Industry

Draft Deferments for Ice Employees

CURRENT indications are that business is in for a tighter labor market generally as defense production and military demands are stepped up. It is entirely appropriate for ice companies to inform their local draft boards that ice manufacturing is specifically included in the list of essential activities and to refer to the list of critical occupations if it has an application to the case. For example, if the individual whose deferment is requested is a plant engineer, it would be advisable to inform the local board that the critical occupation, mechanical engineer, includes refrigerating engineers.

It is up to the employer to make his own case; to present evidence as to the essentiality of his company's operations and the importance of the individual employee. Talk about extending the draft up to age 35 increases. If and when this takes place, occupational deferments will be of very great importance. It is not too early now to consider very carefully the major points to be presented to the draft board regarding the essentiality of each company's activities.

Newspapers Feature Story on 100th Ice Anniversary

AT THE peak of the summer season a story about the invention of the ice-making machine by Dr. John Gorrie broke in over 200 newspapers throughout the nation. Information for the article by AP Newsfeature writer, Saul Pett, was supplied by the Public Relations Department of the National Association of Ice Industries. The feature was more than just a story about a doctor who discovered a means of artificially making ice. It gave the many uses for iceman's ice, and in general painted a wholesome picture of the industry.

Carrying similar information to members of the refrigerating industries was the lead article in the July issue of ICE AND REFRIGERATION.

American Ice Dividend

A DIVIDEND of $1.50 has been voted by the American Ice Co., on the 6 percent cumulative preferred, payable September 29 to stock of record September 8. The only other payment this year was a like amount on July 24.

Summer Publicity Releases Used by Publications

A STEADY stream of summer publicity releases has been issued by the Public Relations Department of the National Association of Ice Industries. Stories promoting domestic ice use have been circulated to food editors at the leading press syndicates and to 64 of the country's foremost newspapers. Tonnage statistics and survey results are going to business writers.

A story about the increasing popularity of freezer-made ice cream including three recipes, was distributed by the United Press to women's editors of its member newspapers.

A release reporting the survey results on the purchase of ice by mechanical refrigerator users appeared in The Baltimore Sun, in The New York Herald Tribune's business column, "Buyers and Sellers," and in the syndicated business column of Lou Schneider. The annual tonnage report recently issued by the National Association of Ice Industries was put in the form of a release and such important newspapers as The New York Times and the Los Angeles Herald Express published it on their business pages.

An item on ice punch bowls was carried in each of the three top newspapers in Washington, D. C. (where an ice company supplies the bowls).

Home Economists See Why Ice is Best

Main view of the National Ice Association exhibit at the Boston Convention of the American Home Economics Association.

THE attraction of an interesting ice display and free refreshments drew large clusters of home economics teachers at their annual convention held in Boston in July. They saw plenty of proof that ice provides the best refrigerant.

Two display racks at the rear of the booth demonstrated ice protection of produce and seafood. An ice refrigerator between the racks demonstrated its efficiency in keeping the home food supply fresh. Two ice beverage chests in the foreground held large quantities of refreshments in perfect condition.

Signs of the backdrop depicted the service ice renders on a national scale. A brilliant four-color poster announced the 100th anniversary observance. Pictures in an adjoining area showed how ice is made and many of its uses.

Using the beverage chests as a stand, two girls served refreshments direct from eye-catching ice punch bowls. Both the bowls and the ice carvings displayed on a nearby table were furnished by the Boston Ice Company. The refreshments were varied; fruit the first day, fruit punch the second, iced vegetables the third and boiled shrimp the fourth (Friday).

Four corsages were given away every afternoon. In addition, three or more surprise gifts were handed out in the form of bowls or baskets of fruits and vegetables. A small plastic bag of ice cubes in the bottom of these bowls and baskets kept the produce crisp. Offered as alternate gifts, the produce "bouquets" were often chosen in preference to the corsages.

From comment overheard it seemed to be the concensus of visitors that the ice exhibit was the most interesting at the show as well as the best attended. Mrs. Mary Pentland, public relations counsel, planned and managed the booth.

THE ICE MAN HAS PROBLEMS

Presenting ideas of top ice executives on problems of the ice business and what can be done about them, simplified into six primary needs. Some old and some new.

PROBLEMS of the ice business are enumerated here in expressions from top ice executives throughout the country, those in whose control largely rests the destiny of the ice business. Some of these problems have plagued the industry for many years; others are of comparatively recent vintage.

The man who has the answers to all of these has not yet spoken and probably never will, but the process of uncovering and publicizing some of the more urgent things that need to be done, with some information on what has been done, is expected to help formulate thinking and stimulate action among ice men.

The important industry meeting of the year—the annual convention of the National Association of Ice Industries meets in Chicago to discuss problems of imminent importance to the entire industry. Included in the program will be subjects on ice sales development to new and profitable markets. It is the "opportunity of the year" to hear the leaders of the industry discuss the problem of vital interest to every ice manufacturer.

Overcoming Defeatist Attitudes

Ever since the inroads of mechanical refrigeration began to be felt, some ice companies have watched their domestic sales going down without the desire or knowledge of how to meet this condition. The result has been and is now reflected in a defeatist attitude stemming from three consecutively poor ice seasons, pricipally due to adverse weather conditions, superimposed on the post-war adjustment in ice tonnage.

According to a Kentucky ice man, this applies only to certain companies in the ice business, since there are many who are hopeful of the future. He is convinced that if the ice business is to retain its place on the industrial horizon, the past will have to be entirely forgotten and the future faced confidently with new spirit and renewed determination.

From Kansas the opinion is expressed that one thing wrong is that many ice men are running a second-class business. Take a look, he says, at the "ice house" and see how it compares with its surroundings. In most cases it will be run down and too often plant docks show their worst side to the public. For all this, he has a remedy:

"We have set for our first objective to create a pleasing setting for every phase of our ice business," he says. Many people have said to me, 'We had just assumed that ice belonged to the horse-and-buggy days. Obviously you don't think so. And if you don't, I guess we must be wrong.' Ice has just got to believe in itself. And the public must have visual proof that ice believes in itself."

From an Ohio city comes the question that even though the housewife can be convinced of the superior merits of ice, how can the ice man overcome the argument of the clumsiness of the refrigerant, the fact that with the best of care a certain amount of mess results, and that she has to be home when the ice delivery man arrives?

Young people, this contributor continues, starting a home now, do not think in terms of ice. Even if they did, they might not be able to take the ridicule of those with whom they associate.

Summing up briefly what is wrong with the ice business, a Tennessee ice distributor says the better-buying ice customers have replaced their ice units with mechanical equipment and very few of these customers are buying extra ice. 'The cream is off the top of the ice business," he says, although he qualifies this as an extreme view.

A more optimistic note is sounded when he says he feels that there is a future to the ice business in a limited way for a long period of time. The public, in general, is more conscious today of refrigeration than at any time before in the history of refrigeration.

Adjustment After War Years

Another trouble with the ice business, as expresed by an Oregon ice man is that every one cannot adjust themselves after the lush years of the war. He recalls he used to say that any fool can sell ice in the summer, but it takes a salesman to sell ice in the winter; but now it takes real sales effort to sell ice in any season. Household mechanicals at 25 cents a day, automatic cubers sold with no down payment have made terrific inroads into ice tonnage. If we don't wake up and hit the ball, all the lush war years' profits will be wiped out, he concludes.

As a remedy for decreasing tonnage, a suggestion from Kentucky is cutting expense and doing what can be done to increase efficiency of production. The majority of ice companies, he says, are faced with the problem of trying to stay on the black side of the ledger with sales dropping off and expenses remaining relatively high. Their sales dropped considerably in 1949 under those of 1948 and again sales have dropped in 1950 under those of 1949; despite this fact however, he says they are showing a better profit this year (1950) than in 1949. As economic conditions change and as trends change, the ice business must change to meet them, he concludes, and he believes those in the ice business can do that.

From central New York State comes a statement of the problem and a complete program for keeping the ice business up-to-date. "I believe our present weakness is in selling", this operator says. "In our city our competitors do very little advertising. Their routes were turned over to peddlers who are only price-minded. So, it is difficult to make much progress."

To meet this situation he offers the following:

What little success our company has had in the ice business since 1870 has come from changes in our meth-

ods of doing business. We were originally a natural ice company and changed over to manufactured ice. We went from horse drawn vehicles to auto trucks, cash and carry stations and now refrigerated cabinets in food stores; from shaved ice on the routes to packaged sized ice and cubes. Our present problem is to find a way of making our services more helpful and more attractive to our customers.

We don't think the ice industry has made a serious, competent or coordinated attempt to merchandise its services. Mechanical refrigeration has not been as successful as was anticipated in the preserving of perishable foods. We should make the trade conscious of the weaknesses of mechanical refrigeration, home-made ice cubes and by good publicity, promote the many advantages in using our ice service. Our industry has lacked in its cooperative efforts with other industries such as soft drink, tea, coffee, Meat Institute, etc. These industries don't know what we have to offer or what to ask for.

Our company has been grading cracked ice since 1929. That's over 20 years and to this day, our industry has no standard of sizing, no common name for this product or for its various sizes. Yet, outsiders have seen the possibilities of trade-marking our product and merchandising it through many outlets. A few companies can't do a good job of selling a chain of stores until they have national advertising of a standard product. We need a good, registered trade mark issued only to those supporting our program. Such a trade name will give us cheaper advertising material, cheaper packages and better equipment.

We have too many icemen turning their routes over to peddlers. They seem to see no future in the ice business. Apparently they are discouraged because of the great amount of advertising and selling methods of our mechanical competition. There have been very few changes in the manufacturing and handling of block ice; very few improvements in the preparation, packaging and handling of sized ice and cubes. We have lacked equipment for using our product and especially a suitable storage for sized ice and cubes in the homes of mechanical users.

You ask, "What can we do about it?" We believe more centralized efforts from practical men of knowledge and vision is needed in a joint effort to bring about needed changes in production, handling and in merchandising. The lack of knowledge as to the uses of ice on the part of our advertising agency is a handicap. There are easily 150 uses ice can be put to. Right now, the proper merchandising of party ice seems a possibility. The convenience of a nut size ice and cubes in the homes of mechanical owners is a great selling argument. It can be advertised.

The sale of crystal clear, long lasting cubes through refrigerated cabinets in neighborhood stores makes ice available and creates a demand for better ice in the commercial field in competition with ice cube makers. The sale of ice punch bowls, rental of glass punch bowls and cups, fruit punch, etc. goes well with party ice service. We believe there is plenty of ice business now and in the future for those who go after it intelligently. Those who survive and prosper against present competition are going to make some changes in their present methods of operation.

Six Primary Needs of the Ice Business

1—Overcoming defeatist attitude under which too many ice men appear to be content with a second-class business.

2—Developing the proven new markets for ice.

3—Meeting the competition of small ice-making machines.

4—More effective selling of refrigerators and other ice-using appliances.

5—Better ice route salesmen.

6—Reducing costs of operation.

From West Virginia, comes a plaintive note that has been heard many times. The only thing wrong with the ice business, this manager says, is loss of public acceptance—the loss of the buying public to want our type of refrigeration. He continues as follows:

"In spite of all the reasons why ice refrigeration is better and cheaper, our customers, both domestic and commercial, do not want it. They have and will continue to replace it with mechanical just as soon as they feel able to do so. As to the solution, I wish some genius would come forth with it, and soon. In our company we have tried every scheme, idea, and sales promotion plan ever suggested in the industry to make sales of ice and ice-using appliances. Each new idea has had encouraging results to start with, but in the end has failed.

"Of course there will always be a market for a certain amount of ice tonnage. But it is rapidly shrinking to the point of being profitless. This is particularly true of the older and larger plants. Something must be found to utilize the excess refrigeration capacity of our ice plants. I have tried to think of some other product to manufacture which would require freezing at not too low a temperature; perhaps heat-treating in reverse of some metals, plastics or alloys. The only results of my thoughts to date have been loss of sleep."

No Longer Competitive

The outstanding fact about the domestic ice business, comments the manager of Utah ice plants, is that it is no longer competitive. A few short years ago, he says, it was possible to hold an ice box, against electric refrigeration competition on a cost basis alone. The same was true of cube ice. "We cannot compete with the small cubing machines now on the market for the reason that our costs have increased and the cost of competition, particularly electric power, has decreased and the efficiency of the competitive machines has improved.

"Labor costs, cost of distribution are the stumbling blocks, possibly the automatic ice dispenser is the answer but this is only a partial solution. We may as well face it, our ice departments are in for a real adjustment.

"In a recent issue of ICE AND REFRIGERATION, the statement was made that over forty-one million tons of ice were manufactured in 1949 showing that it is still a sizable industry, but how to curb the declining sales is a pretty tough problem."

Commenting on the ice men's attitudes, a Missouri manager says it is most important that they must feel in their own hearts that the ice business is not a dead business, and that if they work hard and actively merchandise and advertise their product, they will find that there is still a big market for ice.

A good overall picture of the developments which have enforced changes and new outlook, along with a program to meet this situation comes from Canada. The present status of the ice industry he says, is largely the outcome of its attitude when the new mechanical competition emerged a generation ago, and in like manner its future development will be conditioned by what is done in our time. He continues as follows:

The ice men were slow to recognize the intrinsic merits of their product, nor did they seek to demonstrate by research its wider application in the commercial as well as the domestic field. It should have been apparent that the inadequacy of the old-fashioned ice box, lacking in insulation, of poor construction and mediocre ap-

pearance was an open invitation to the makers of the mechanical unit to step in. Neither did these men realize the important part played by personnel in the sale of ice, and especially in sustaining public confidence and goodwill.

At a time when he needed to cooperate fully with the manufacturers of ice refrigerators to produce cabinets at least equal in appearance and performance to those housing the mechanical unit, the ice man concluded that his job was to sell ice and, except in rare instances, he left refrigerator selling to the stores. Not receiving the active and intelligent cooperation of the ice dealers, many stores and factories turned their energies into the much advertised and much promoted electric refrigerator. In communities where decrepit ice houses existed along with antiquated methods, a plant for the manufacture of ice and new equipment might have turned the scale, but failure to advance left the opposition in possession of the field.

It is true that in late years realization of these factors has gone far to reinstate ice in public esteem, increase tonnage output and open new markets, and where the adverse trend had not already gone too far, to place the industry on a firmer footing for the future. The present position can, in the opinion of the writer, be prolonged indefinitely and even improved in many communities by setting up an educational program, efficient organization and new merchandising plans.

In particular the ice dealer should endeavor to replace all antiquated ice boxes with modern air-conditioned refrigerators, wherever possible with permanent drain connection; promote the taking of ice on a year-round basis at a concession in price, thus making his service comparable to that of the electric unit, so far as continuity and convenience is concerned; develop a trained and well-informed staff of route men; seek constant improvement in refrigerator design and actively push refrigerator sales; make every ice delivery truck, every ice-making plant and every block of ice reflect the high standards and integrity of the industry; adopt new methods to forestall competition, making ice available not only by truck but through cash stations strategically placed; use every possible means to educate the public as to the unique advantages of ice as a refrigerant.

"Good Old Days" Past

One of the leading Illinois ice men says they are too apt to think of conditions existing in the "good old days" when ice had a virtual monopoly in the refrigerating field and no effort was necessary to dispose of the product in competition with other types of refrigeration. The ice industry is a victim, if you want to express it that way, he says, as are all other industries, of progress, research, scientific development of processes and products which are apt to make older products obsolete.

A new and different type of refrigeration has been developed. It has taken years of research and experimentation, much money has been spent, many losses taken in the efforts to perfect and merchandise this new product. It has caught the public's favor. To be brutally blunt, it is the most desired and our product, least desired. What caused this change? In the early days it was the novelty of a new gadget. Later, beautifully styled, gleaming white cabinets, ice cubes, frozen desserts, pride of possession, social superiority, freedom from the ice man, lower temperatures, being modern.

There are new markets for ice — through vending machines, iced vegetables, poultry processing and retailing. In addition, ice should be made available in all forms, block, crushed, cubes, and actively advertised and merchandised.

It seems to a Canadian ice distributor that a number of ice companies just sit back and hope that business will come to them without doing anything to develop new uses for ice. This is because these companies have never been merchandisers and are making no attempt to learn anything about merchandising. These companies do not want to be troubled with the effort it takes to launch new merchandising campaigns but are content to sit in their office and hope that everything will go along all right. Until something is done to shake these people out of their lethargy, they are doomed to failure.

New Markets for Ice

One of the more essential primary needs of the ice business is that of developing the proven new markets for ice, through vending machines, iced vegetables, poultry processing.

From Oregon comes the point that new business can be created by selling specialty ice. Brighten up the product, he advises, by putting it in attractive multi-color paper bags. Sales can be made if the customer knows your sized ice is colder. Store it in a room of not over 10 degrees, he advises. Frost will gather on the bags and it is a good selling point. Sales can be made to mechanical users by advertising beverage, sized ice and cubes, delivered in wet-strength paper bags. Advertise party ice and let people know where they can buy it.

It takes work to put over the vegetable icing and chicken deal but they find it profitable. Another source for snow ice is the sausage kitchen. Snow does not dull the knives and cuts the large sausage producer's overhead. There is nothing wrong with the ice business that a good doctor cannot cure, he concludes, but the industry must keep up a steady research for new uses of ice to provide the doctor with the remedies.

Ice should be made available in all forms, block, sized, crushed and cubed, and actively advertised and merchandised, says a Missouri distributor. There is certainly a market for all forms of ice but the customer must know about the availability of the ice and the convenience in obtaining it.

Use Grocer's Case

They have found that new customers for vegetable icing can be obtained most easily by utilizing the case that the grocer has, rather than trying to sell him a new one. They use the 10-day free-trial and temporarily fix the case to use ice. Then if the grocer wishes to continue with ice they will convert his case for him and charge him only the actual cost involved for the conversion. He feels that ice should be made available in a convenient location 24 hours per day through use of vending machines.

Vending stations are used effectively by a Tennessee company to reach new users of ice. This year for the first time his company put into operation two conveniently located ice self-service stations where the customers can buy either a 25-pound block of ice or a paper bag of sized ice. They have received favorable comments from these two stations and they hope to put more of them in operation in the future.

Crushed ice has gained in popularity, says a report from Ohio, because it is easy to handle in a paper bag and does the job of cooling faster and is more appetizing. Railroad car icing, poultry dealers, chemical manufacturers, milk people, fish people, picnics, parties, soft drinks, bar, and large gatherings of people will use ice for a long time to come, he says.

An ice man who has been in business in Kentucky for many years,

says he is confident that all ice companies must develop the proven new markets for ice if the business is to keep its relative place on the industrial scene. It is almost a waste of money to nationally advertise iced fruits and vegetables, iced fish and poultry, package vended ice for picnics and parties when perhaps less than twenty-five percent of the ice plants in the United States offer such services.

Competition of Small Ice Making Machines

Through most of the letters runs a current of concern regarding the small ice-making machines. The case against them is well stated by an eastern association executive.

There is nothing wrong with the ice business except that too many users of ice have decided to manufacture their own ice by simply plugging in to an electric socket which will operate a machine that not only makes ice but also furnishes the refrigeration that ice used to furnish.

There are millions of these little ice manufacturing machines in homes, stores, hotels, restaurants, etc., compared with about 6000 large ice plants which make up the ice industry.

The serious decline in the sales of ice throughout the country so far this season is undoubtedly reflected in the sale of 6,000,000 of these little machines for domestic use during the 17 months from January 1, 1949 to May 31, 1950, plus thousands of larger commercial units. Of course unfavorable weather conditions accounted for a certain percentage of this decline, but that percentage is anyone's guess.

The sale of these little domestic ice machines in the Philadelphia area for the first six months of 1950 amounted to 71,000 units which is a gain of 66 percent over the same period of 1949, while the decline in the sale of ice for the same period amounted to 26.7 percent.

What can be done about it? That's a $64.00 question. I do not have the answer, but I believe that if consolidations could be effected whereby uneconomical factors in both manufacture and delivery could be eliminated we would have a partial solution of the problem.

Selling Refrigerators and Ice-Using Appliances

An old problem, but one which appears to be growing in importance in the thinking of forward looking ice men, is the necessity of merchandising refrigerators and other ice-using appliances.

On this subject a Tennessee distributor says his company is making every attempt to promote more sales in ice equipment. They have this year sold nearly 400 ice refrigerators and nearly 150 other type ice appliances. However, he adds, this is not what they should be doing. The mechanical boys are doing a much better job of selling. To carry on this program, this company has arranged to hold weekly sales meetings with the ice routemen during the fall, winter and spring months.

The necessity of merchandising refrigerators and other ice-using appliances is an old problem, but one which appears to be growing in importance. Refrigerator rental plans will not only help to hold customers, but also will be a morale builder for the ice business.

One of the major problems of ice men, according to an opinion from Kentucky is the failure to resume the merchandising of refrigerators and ice-using equipment as carried on prior to World War II. He is certain that all ice companies large and small should merchandise refrigerators and ice-using equipment the year around, not only for the sake of the ice tonnage thus held or regained, but also for the wholesome effect which industry-wide merchandising would have on the morale of the ice business.

A similar thought with a slightly different angle is expressed from Missouri to the effect that ice-using appliances should be merchandised on as small a margin as possible. He feels that keeping an old customer or getting a new customer who will use ice for years to come will justify the sale of equipment at a very small margin.

Rental Basis Suggested

This is further amplified by his suggestion that ice-using equipment should be made available on a rental basis, the ice being included in the monthly rental in so far as possible. This rental should be figured as low as possible and advertising should accent the low cost per day including the ice. For example "New Ice Refrigerator for only 15 cents per day including ice." The renting of picnic chests by the day, week or month furnishes a nice bit of extra business, he says.

Some of the more progressive ice companies are endeavoring to develop new merchandising plans to assure themselves of a continuing market for the years ahead says a representative of the Canadian ice industry. They are developing refrigerator rental plans to protect and enlarge their domestic trade and are developing vegetable icing display cases and chicken icing display cases to enlarge their business in the commercial field. Unfortunately there are not enough companies doing this type of merchandising and unless more of them try to develop better merchandising plans, they are certainly going to have a decrease in tonnage to the point that it will not be profitable for them to remain in business.

Better Ice-Route Salesmen

Another old problem, brought up at every ice convention since the close of World War II, has been the need of more competent ice delivery salesmen. This need still exists.

A Tennessee distributor says one major thing needed is better route salesmen. Better salesmen, he says, will provide customers with better service, which will mean more ice sales.

In an effort to provide better ice route salesmen, a Kentucky company has placed all truck delivery men on a commission basis and they have found this plan much more satisfactory as well as more economical.

Another method, old but effective for improving efficiency of drivers, comes from a Missouri ice man when he says he believes that employee sales meetings are important in keeping the interest of the employee in doing his part to merchandise ice-using equipment. Commissions should be liberal. His company stresses the importance of keeping the deliveryman neat in appearance and courteous in his actions.

An Indiana distributor reports improvement in delivery methods when he changed from company operated trucks to dealers. Since then, he says, they have had better cooperation from their dealers, who were formerly company employees than they were ever able to get from them when they were working for the company. They are giving much better service and worked on all holidays since May 15, and show more interest in trying to satisfy their customers than they did when working for the company.

At this particular moment, says a representative of the Canadian ice industry, there is a definite shortage of labor which makes it most difficult for the progressive companies to give the type of service they would like to give. This does not mean of course that their delivery service has completely broken down, as they still have a good percentage of reliable men working for them; however they are all striving to make up that 20 percent of their personnel which is not doing the ice business any good; as a matter of fact, it is this 20 percent that is driving more people to buying mechanical refrigerators than anything else at this time.

Sales Attitude Needed

Another thing wrong with the ice industry, according to an Illinois ice executive, is that with very few exceptions, top management is not sales minded. They do not have the know how and are not willing to employ and pay the salary to someone who has been trained to carry on this activity. They know nothing about market surveys, planned sales campaigns, progress reports, sales aids, advertising media, etc. and sadly enough, are not interested. Opposed to them are highly trained specialty salesmen who have a planned program and devote all their time to selling, while the ice industry is trying to sell, if any effort is made to sell, with personnel at the driver level who are at best poorly trained and in some cases have no training. It just will not work, he concludes.

Reducing Operating Costs

The problem of greatly increased costs of production, accentuated during and since World War II has enforced serious consideration of how to cut expenses without unduly decreasing the quality of service.

Expenses must be cut says a West Coast operator. He suggests cutting personnel to the bone and carefully screening drivers, keeping only the fast "hard hitting" route men. Revise route books to cut mileage, he says, eliminate streets where there are no customers. Put all regular customers on watch service and eliminate all cards possible, cutting necessity of daily service in certain districts.

The change from company owned delivery system to independent dealers or peddlers is reported as a method of reducing costs. Experience recited by an Indiana plant details a large saving in payroll plus the added economy in gasoline, oil and maintenance items. The opinion is expressed that the overall results were good in that efficiency was increased while economy also resulted.

Here is what a Kentucky executive is doing to meet rising costs. They have cut their personnel down as low as they think possible and yet not sacrifice service. They have revamped their advertising program and cut some that they felt was not paying off. They have shut down one plant entirely, as they do not need the tonnage it produced.

The ice business is a constantly changing business, beset by new and competing products. This condition taxes and will continue to tax the ingenuity of all ice managers large and small. The success of their business will depend upon the extent to which they are able to anticipate and prepare for these changes.

In an effort to reduce labor costs, one of the leading ice plants in upstate New York is making its plant more automatic.

Miscellaneous Comments

There are many other comments, ideas and suggestions that tend to throw light on the above and other problems, with possible solutions. Many repeat what has been said numerous times before. Others express new viewpoints and ideas.

Our volume of business, says a western distributor, has declined more drastically than it has in any other section of the country, due largely to the fact that we retained a good deal of domestic business until the last year or two. As a result the over-production of ice is going to be a great handicap on the industry making any money in this section for many years to come.

An upper New York State executive would like to see a good merchandising set-up, using a trade marked name, with a high quality product. This, he says, would make it possible to maintain a better price. He suggests that the Technical Department of the National ice association should be able to interest equipment makers in the developing of packaging equipment.

A middle west association secretary suggests that a whole new appraisal of the ice business should be made, community by community. Unprofitable operations should be eliminated by sale of small unprofitable plants to larger ones, or by closing the small plant and purchasing ice.

Merchandising Program

Along with these, he recommends the formulation of a merchandising program well directed, building a trained personnel, producing and merchandising a sanitary product with modern equipment, ice in the form people want it at places and times desired, a pricing policy fair to the dealer and the public, selling prepared ice, use of vending stations, and generation of interest, enthusiasm and courtesy throughout the organization.

The ice business, he says, is like all other businesses, subject to change because of new and competing products. As long as human life exists, change is inevitable. It taxes and will continue to tax the ingenuity of all business men to survive in this highly complex and competitive era.

Regulations Cover Credit Buying of Refrigerators

A SUPPLEMENT to Regulation W, covering consumer credit has been issued. Of special interest to the ice industry, it provides for household furniture, including ice refrigerators, 10 percent minimum down payment and 90 percent maximum loan value, with maximum maturity of 18 months. For mechanical refrigerators and food freezers, 15 percent minimum down payment, 85 percent maximum loan value, and maximum maturity of 18 months is required.

Sidelines Can Supplement Ice Company Sales

IN THESE days of high overhead and low load, it is important for ice companies to consider selling diversified or allied items or services, says a bulletin by the Personnel Training and Marketing Department of the National Association of Ice Industries. In addition to such stand-by lines as coal, fuel oil, and the like, some companies are handling other more widely diversified lines. The program for the national ice merchandising forum to be held during the National ice convention, will include a discussion of this subject.

Sized Ice an Old Story

Acceptance and Usage by ice distributors established by articles published in Ice and Refrigeration

THE first of the several suits in connection with the sized ice patents went to trial after this October issue was on the press. The report of it will be given in the November issue. A check of the files in the office of ICE AND REFRIGERATION had been made to determine the early publications on the subject of preparing and selling sized ice.

A number of these proved to be important in showing how early this processed ice was produced and sold. For example an article entitled "New Equipment for Sizing Crushed Ice," by W. E. Herb, Gifford Wood Co. was published in ICE AND REFRIGERATION October, 1936, page 264, illustrated with a photo of a Gifford-Wood complete sizing unit with crushed ice elevator, screens, four section hopper and bag filling chutes. The text of the article describes the operation of the equipment and analyzes the market for the various sizes of ice. An advertisement on page 16 of the same issue has a large illustration of the ice-sizing equipment installed and in use.

In the November, 1936 issue, on page 332 is the summary of a paper by H. D. Sanford, one of the pioneers in processing of ice. He told the National Association of Ice Industries convention about the demand for crushed and sized ice supplied by his company.

National Recognition

In an article on page 344 of the November, 1936 issue, General P. A. Weatherred commented on the national recognition then accorded processed ice as a valuable ice tonnage builder, as follows:

"*Sized Ice.* As a means to secure greater customer satisfaction and as a tonnage builder, sized ice was definitely recognized at this convention. Crushed ice has, of course, long been provided their customers by many, probably most, ice companies. After the popularity mechanical refrigeration gave to ice cubes, many companies have increased customer satisfaction and gained some profit through sales of the cubes. Now comes sized ice,—ice in any form that the customer wants it. H. D. Sanford's presentation of his experience with sized ice and his thought upon the promotion of its use and upon its value as a good will and a tonnage builder, give impetus and form to this movement that take it out of the experimental stage and will lead to its eventual establishment as an accepted and usual part of complete ice refrigeration service.

In the February 1937 issue, H. D. Sanford's paper, "The Market for Sized Cracked Ice," is reprinted. In this paper Mr. Sanford makes the statement that for years his company had supplied ordinary cracked ice to customers. Experimenting with an ice-flake machine they used it to produce a type of ice about the size of a walnut and sales had increased. Further experimenting and use of a screen had produced various sizes of crushed ice, from small to large and the result was that they had ice prepared and sized, a product all ready for the customer's use.

Sized Ice Advertised

Broadsides were printed for distribution to commercial users announcing "Ice graded and sized like coal—a size for every use." Each of the four sizes were given distinctive names, coil, drink, cocktail, and flake ice. "We talked sized ice," Mr. Sanford continues, "until people began to realize what we had to offer. We prepared charts for our salesmen and dealers showing the big market open for them. It gave us something new to talk about. It was like streamlining an automobile or train."

He said they realized that as their sales increased they needed greater capacity and a cheaper method of cracking and sizing ice. To meet this demand, a shaker screen was designed and constructed to separate and grade the crushed ice into various sizes. This device was one of the forerunners of the modern ice crushing and sizing machine, of which numerous installations have been made.

Mr. Sanford adds that there were, at that time, several methods of cracking and sizing ice just as good or better than theirs.

"Our present sized ice sales," he continued, "represent 25 percent of our total route sales. Of this amount about 15 percent is the large coil (or egg size) ice; 60 percent drink (or nut size); 12 percent cocktail (or pea size) ice; 3 percent flake, 10 percent cubes. We have a surplus of fine ice which can be cut down by future improvements in the ice breaker, or by developing a market for it."

The balance of this article covers information on installation of a crushing and sizing plant, handling and delivering the ice, uses for sized ice and some comment on the future of sized ice. There is a future for the ice industry, he says, in sizing ice.

An article in the March 1937 issue by George Lange, vice president of the American Ice Co., New York City, points out that many ice companies had already shown the way to increased ice sales by preparing sized ice. They make as many as five different grades, he said, sized about the same as coal from egg size down to rice, snow or dust. The public, he concludes, has shown a real interest in this product and the engineers must solve the production part while the sales and delivery men build the business.

A merchandising session of the City Ice & Fuel Co., in Cincinnati and Dayton, April 8 and 9, 1937, was reported in the June issue of ICE AND REFRIGERATION. At that meeting James Gibson of Columbus pointed out the great possibilities for prepared ice in displaying food products, and gave some suggestions for promoting the sale of prepared ice and the kind of container to use.

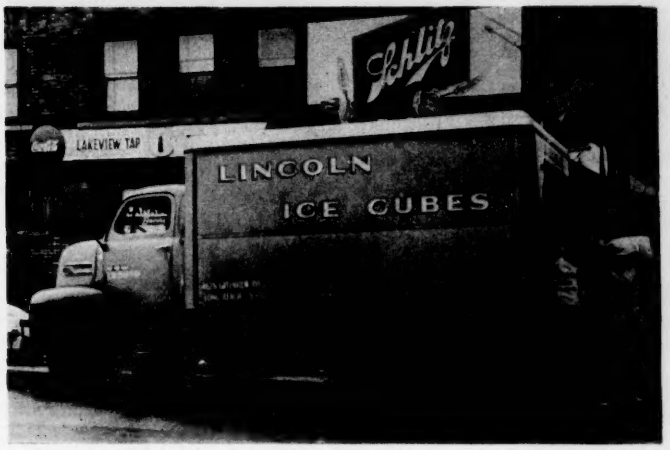
Delivery Service for Sized Ice

In the same issue of ICE AND REFRIGERATION is a feature article telling how Serv-Ice, Inc., Memphis, Tenn., had inaugurated a delivery service for the delivery of sized ice to both domestic and commercial customers. This article covers the market and delivery features of sized ice, illustrated with pictures of special delivery equipment for sized ice, special containers, and how it is used in the home, kitchen and restaurants.

In the November 1937 issue, an article prepared by the Technical Department of the National Association of Ice Industries, Emerson Brandt, secretary, points out that sized ice and ice cubes promise much for the industry in the future. The men who are in the forefront of this development no longer sell block ice alone, but have a complete stock of ice in different sizes suitable for the needs of the various types of consumer, the article states.

Ice is Tops for Foods and Drinks In Chicago Restaurants and Stores

Big commercial ice users in Chicago testify that ice provides the best refrigerant. For foods it cools and chills without freezing and for drinks it adds sparkle and freshness.



Prompt and efficient service by this ice delivery truck keeps commercial customers of crushed ice and ice cubes satisfied. The Lincoln-Boyle Ice Company has many trucks serving the Chicago area

WHILE Mechanical refrigeration contrivances, home-made ice makers and other substitutes for ice offer lures of various contexts, many of the bigger, better established commercial ice users in Chicago continue to use ice, as they have been doing for many years. Where the ice service is satisfactory they expect to continue to resist the blandishments of mechanical gadget salesmen.

To measure the degree to which these establishments use ice, a representative of ICE AND REFRIGERATION called on some of the bigger concerns in which refrigeration of foods and drinks is a major part of the business. Without exception, they have no fault to find with their present ice service. Although some of them have their own refrigerating and ice making equipment, many depend upon purchased ice to augment their own supply. Others declare that they have no intention of going to the bother and expense of switching to their own make as long as they can purchase ice on a satisfactory basis.

Restaurants Use Tons of Ice For Foods and Drinks

The numerous restaurants in Chicago offer a big market for commercial ice and they have found by experience that ice provides the best refrigerant for foods and drinks. Ice holds these foods and drinks at the proper temperature, provides sparkle to beverages, and moisture and fresh appearance to foods, cooling and chilling, without freezing them. And most of the larger and better establishments prefer to buy ice from their ice service man rather than go through the bother and expense of installing their own ice-making equipment.

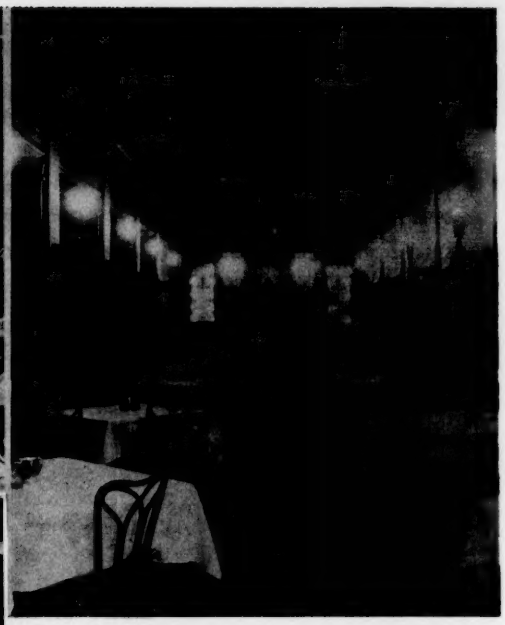
Henrici's

Henrici's restaurant, well known as Chicago's oldest restaurant, is located at 71 West Randolph St., in the north center of the business and theater section of the "Loop." It is one of the better eating places, and has an excellent reputation for good food, not too high priced. Aside from a small freezing room and cooler for fresh meats, ice is used for cooling all foods and chilled drinks. About 3800 meals are served daily, seven days a week.

This restaurant makes a specialty of fish, and for holding fish in the kitchen a large stainless steel chest has been installed measuring 12 feet long and 36 inches wide, overall, made by Albert Pick & Co. It has four compartments. The fish, after being cut into portions ready to serve is arranged in layers in a stainless steel pan, on a floor of block ice, covered with cheesecloth and each layer blanketed with six inches of finely crushed ice. This method has been used for many years and is completely satisfactory. Held at the temperatures and moisture conditions provided by ice, the fish keeps much better than if completely frozen. In this case fish may be kept perfectly for three days or longer.

Other refrigerated foods served at Henrici's include salads, frozen desserts, cold meats, cold roasted chicken, iced tea and coffee, cocktails and other chilled beverages. Ice cubes are used for these and crushed ice is used for shaking cocktails. Crushed ice also is used for display of shrimp, cold plates, relishes, salads, etc., and flake ice is used mostly for garnishes for salads. Some dishes, cooked to order, are cooled down to room temperature or lower by being placed in a container which is held the necessary time in an ice water bath.

Ice is purchased in block form, standard 300 lb. cakes, and crushed or cubed on the premises with an ice crusher and a Thermo-Cube ice cuber. From the ice room, the prepared ice is distributed by hand trucks and 50-pound pails to the various serving counters in the kitchen. The procedure usually is to prepare a sufficient supply of crushed ice and cubes for the day or as needed, going through the operation again if the supply falls short.



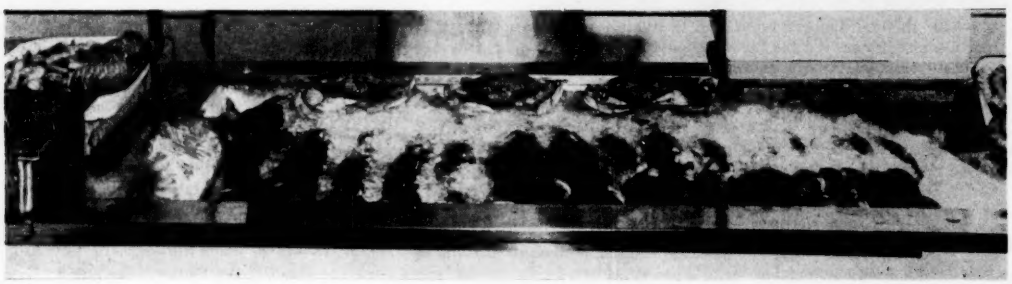
Chicago restaurants are good ice customers. Top left, Toffenetti's at 65 West Monroe Street. Lower left, fountain and lunch counter at Belmont and Clark Streets where iceman's ice is used. Above, a corner of main dining room of Henrici's, 75 West Randolph Street

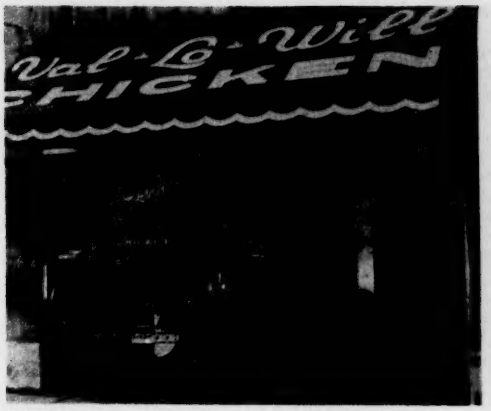
Ice service is supplied by The Lincoln-Boyle Ice Co., and this service has been prompt, efficient and satisfactory in every way for many years. About a ton of ice per day is used during summer months and about half a ton in winter.

1½ Tons of Ice Daily

The Charles Harrison Tavern and Restaurant at La Salle and Madison Streets, in the heart of the "Loop," uses approximately one-and-a-half tons of ice a day. Most of this goes to the three bars which require a total

All successful seafood retailers know that ice provides the only satisfactory refrigerant for fish. Below is the iced fish counter in Knott's fish and delicatessen store on North Clark Street, Chicago. Right, another view of fish counter, completely covered with ice.





Front view of main store, Val-Lo-Will dressed chicken store on Howard Street, Evanston, Ill.

Top quality dressed chicken is sold at this Val-Lo-Will store. Note liberal use of crushed ice

of about 20-50-lb. bags of crushed ice and about 20-50-lb. bags of cubes. The coffee shop and three lunch counters and dining rooms, for the most part, depend upon mechanical refrigeration for cooling drinking water and chilled beverages and for preserving foods.

This is one of the well established Chicago restaurants, having started in the same building now occupied about ten years ago. In the four restaurants, about 4000 people are fed each day. For the three bars, ice, either crushed or in the form of cubes, is the predominating refrigerating medium for all beverages. Deliveries are made early in the day and supplies of ice, crushed and cubes are alloted to each bar. Some ice is used in the coffee shop, lunch counters and restaurants for iced tea and other chilled beverages.

120 Tons of Ice in Month For Restaurant Chain

One of the leading better restaurant chains in Chicago is Toffenetti's Inc., operating seven restaurants in the "Loop", and one at the Chicago Fair. Four of the Loop restaurants also serve liquor.

The largest restaurant, at 65 West Monroe St., seats 642 people. Drinks, both hard and soft, are served here. During the summer months this location uses slightly less than 24 tons of block ice and 160-50 lb. bags of ice cubes per month. Another at 57 West Randolph which also serves liquor, seats 416 people. Summer consumption of ice amounts to about 24 tons of block ice and 80-50 lb. bags of ice cubes per month.

Total consumption of ice in all eight restaurants for the month of July this year amounted to 118 tons of block ice and 273-50 lb. bags of ice cubes. This company makes no ice of its own. Ice cubes are used chiefly at the bars for mixed drinks. For table use, some cubes are used for ice water and beverages but mostly it is crushed ice, chipped by hand from ice blocks in the ice store room adjoining the kitchen.

Additional refrigeration is furnished by a mechanical cooler where fish, fresh meats, dairy products, fruits and vegetables are held in day storage only. Deliveries on these products are made daily and the aim is to strictly limit the amounts to be held over night.

Satisfactory ice service, with all deliveries in the early morning, has been provided for many years by The City Products Corp.

Retail Chicken Stores Use Ice Exclusively

Chicken stores, where dressed chickens are sold, either whole or by the piece, are popular with Chicago housewives. In beds of finely crushed ice, behind immaculate glass and chromium counters, they have a fresh, clean appearance. Ice is used, almost exclusively, for this reason and also because it provides perfect refrigeration, with adequate moisture and no dehydration.

Val-O-Will Farms

The Val-O-Will Farms, operating eighteen retail stores, are large users of crushed ice for both processing and retail display. Ice is used exclusively in preference to mechanical refriger-

Small taverns, numerous in Chicago, are good customers for crushed ice and ice cubes. Here we see a highball being served with two iceman's ice cubes at tavern on the north side of Chicago at the corner of Lawrence and Clark streets. They serve soft drinks too, with crushed ice and cubes

ation. In fact the management thinks so highly of the preservative and appearance qualities of crushed ice in the chicken display counter that it is deemed cause for dismissal if the manager of a store does not at all times keep chicken on display completely covered with crushed ice.

The chickens are dressed at the main processing plant at Lake Geneva, Wisc. The dressed birds are put through a chilled water bath and then packed in crushed ice in barrels and trucked to the main distributing plant on Howard Street in Evanston. The dressed birds arrive fresh every day. Immediately upon arrival they are weighed and repacked in iced chests for trucking to the retail outlets.

At the stores, the dressed chickens are displayed in counters on a bed of finely crushed ice, chests being used for storage, from which the counters are replenished as needed.

At the Geneva processing plant, three ice making machines supply all the ice needed. For the main distributing plant and for the retail stores, commercial ice is purchased from the Lincoln-Boyle Ice Co. Ice deliveries are made every day direct to the stores.

Ozark Chicken Shops

Economical and efficient refrigeration is provided by crushed ice for the Ozark Chicken Shops Inc., operating nine retail stores in Chicago. These chickens are shipped daily from the Ozark country to the main store at 2451 North Harlem Avenue. There they are processed, put through a cold water bath and then packed in ice in barrels for hauling by truck to the retail outlets.

At the stores they are displayed in counters on beds of finely crushed ice. No mechanical refrigeration is used and no ice is made; it is all furnished, delivered daily, direct to the stores. The company uses approximately 1,000 lbs. of ice daily. The ice service, according to Mr. Shapiro, manager, is perfect for their needs.

Drug Stores Use Ice

Another market for commercial ice are the numerous soda fountains in drug stores and other retail establishments throughout the Chicago area.

The Walgreen Company operating a nation-wide chain of drug stores including 150 in Chicago is a good commercial ice customer. While a few of the larger stores have individual ice makers for cubes and crushed ice, most of them depend upon purchasing their supply from regular ice dealers. Approximately 80 percent of all ice used by all stores in Chicago is purchased. Block ice is used to provide refrigeration in the basement for storing surplus milk and cream and other perishables.

Use by the larger Loop and outlying stores amounts to 1000 to 1200 pounds a day each, usually purchased in block form and crushed in the basement and carried from there to the fountain in sanitary pails. Each store manager does his own purchasing. The smaller stores, for the most part buy it already crushed in 50-lb. bags, using an average of about 300 pounds a day.

Department of Commerce Recommends Ice

THE Business Information Service of the U. S. Department of Commerce has issued a bulletin entitled "Building Produce Profits Through Iced Displays." When the retailer displays fresh fruits and vegetables on crushed ice, it declared, he generally gains in the following ways: (1) Minimum loss of moisture and weight in the produce (2) Minimum trimming necessary (3) Fresh appearance and nutritive value of produce retained (4) Turnover and "impulse sales" increased.

The bulletin included a table showing how vegetables displayed on ice for two days compared in weight change with others displayed dry. The latter lost an average of about 20 per cent of their original weight, while the ice-displayed vegetables actually gained slightly.

Other advantages of ice display cited in the bulletin were the simplicity of the equipment required, elimination of the need for sprinkling the produce, and the ease of overnight storage. Since the display need not be removed from the case at closing time, it was pointed out, considerable labor saving is effected.

Suggestions for constructing an ice display rack were given, plus a description of three recommended display methods and instructions for preparing and arranging the items.

Plant Maintenance

THE November issue of ICE AND REFRIGERATION will feature a number of excellent articles on plant maintenance methods. Watch for this valuable material which is especially useful during the off peak season in refrigerating plants.

Ice Industry Included in Regional Promotion

WHEN a group of El Paso business firms joined to sponsor a series of ads in the local papers promoting the Southwest area, Consumers Ice and Fuel Co., was among them. But Tom E. Rogers, general manager of Consumers Ice wasn't content to remain merely a sponsor. By dint of persistent campaigning he convinced the group that El Paso's ice industry was important enough to be the subject of one of the ads. The results of his efforts appeared in both the El Paso Herald-Post and the El Paso Times on Saturday, July 22. A full-page spread headed "El Paso . . . Home of the World's Largest Bunker and Re-Top Icing Dock."

The text of the ad described the icing capacity of the dock, annual tonnage of the four El Paso ice plants, and their recent expansion of facilities. Six accompanying pictures illustrated car icing at the dock and ice-making in one of the plants.

"It was quite a chore convincing the sponsoring firms that ours was an industry of importance enough to rate this," reports Mr. Rogers, "but I believe it was worth the effort."

Iced Coffee Boosts Ice Sales

THE National Coffee Association reports that while exact figures are understandably difficult to secure, it is estimated that total usage of iced coffee in homes and restaurants during the summer of 1950 may amount to approximately 90,000,000 pounds.

An appreciation of the size of this new business for coffee can be had from the fact that this tonnage is almost identical with the total tonnage of tea. The amazing growth in the popularity of iced coffee has been accomplished, however, without apparent injury to the iced tea business, since tea tonnage has increased slightly in the past two years.

W. F. Williamson, executive vice president of the association, said that the new business in iced coffee has been due almost entirely to salesmanship through advertising. He pointed out that more money was spent to advertise iced coffee during 1950 than at any time in history. It was always possible to enjoy iced coffee, but few consumers did until they were told of its merits through persistent advertising and sales promotion, he said. Promoted originally to overcome a seasonal slump in the coffee business, iced coffee has gained in popularity until it has now become an important contender in the summer beverage field.

Metropolitan Ice Company viewed from the old fish pier, T Wharf. Note chute from storage room to deck of Hazel B as she loads ice. (Office is at extreme left). Other draggers appear in left of picture.

ICE—A MUST FOR FRESH FISH

Before starting on a trip, fishing boats load up at Boston pier with ice to preserve their catch. An eye witness story of this profitable ice business.

CHARLES A. DEARING
Metropolitan Ice Company
Somerville, Mass.

THE use of ice for preserving freshly caught fish is an old story to Boston fishermen. For the Boston division of the Metropolitan Ice Company it represents a profitable market for a huge tonnage of crushed ice which pours down the chutes from the ice storage room to the holds of steamers, draggers and trawlers. When the two crushers at the company's ice plant on the Boston fish pier start grinding out their staggering volume of crushed ice, the first step in an old fish story properly becomes the first in this new 1950 fishing expedition story.

Ice the Way They Want It

It isn't just the fact that pure, crystal-clear processed ice is available at Boston division of Metropolitan that brings boats to the two docking spaces at the wharves. It's the fact that the company aims to please their fishing friends with the kind of ice they want "at any tide of day." If they'd rather have white, soft ice, then it's theirs. Because ice is delivered directly from the storage room by chute to the boat, there is no meltage and no water to be pumped out later. This kind of ice delivered that way can always be shoveled without the aid of a pick even after a number of days, because it doesn't have the opportunity to harden. Service is rapid, for many of the men are experienced Old Salts themselves, all of them keenly aware and sympathetic with the problems fishermen face in their trade. The water service is a complimentary part of our icing operation.

Metropolitan is an old hand at servicing fishermen. A century ago that one office down on Commercial Wharf opposite the old fish pier (T Wharf), was the entire company. Since then, it has expanded its business to include many enterprises in a number of different fields, with offices scattered throughout New England. But that little office down there on Commercial Wharf, which is the center of activity all day long—and even during the night, when emergency demands it—has a special place all its own in company history and favor. The original Metropolitan Ice Company is there—haven for fishermen coming in and going out to points all along the seaboard coasts.

First Fish Shipments

Fishermen don't have to be told that the first method for shipping fish in this country began about 1868, when a Detroit inventor patented a process for freezing fish into solid cakes of ice for shipment. This was the same year that America's first artificial ice making plant was built in New Orleans. It took twenty-two years to build a volume for these inland shipments and by 1890 some 4,000,000 pounds of fish were annually processed by this method, which entailed the freezing of whole fish into solid blocks of ice.

Today, the ice industry's 6,800 modern ice manufacturing plants, with a daily capacity of 310,000 tons, together with natural ice harvested from northern lakes and streams, provide modern America with nearly 50,000,000 tons of ice a year. Ice now is sized to fit the particular needs of a number of industries, crushed to

Aboard the Hazel B dragger while she takes on her load of ice, prior to a trip. Ice capacity is 25 tons. (Note chute through which ice enters deck holes.)

meet the rather fine specifications required by fishermen.

Why do the fish brought to the Boston markets need an ice covering? Why does the storekeeper again continue that icing process? Those who have seen a fish out of water without an ice covering, should know the best answer to that one. Fishermen have seen the shellfish or fin fish perk up when it is taken from the icy depths of the sea, and still dripping, is bedded in cold, moist coverage of ice. They know that its tender skin remains firm, its color natural and glossy, its protein value at maximum, and it tastes better for a longer time.

Best Fish is Iced

Mrs. Housewife for the most part, has no idea of the fisherman's job of caring for his produce after he has caught it. She doesn't know whether he is one of the careful fishermen who ices his fish properly all along the route, but she buys only the best, and "the best" is the fish that's been treated with care and plenty of ice. She buys what looks the nicest, and she doesn't want to take a chance on dried-out, limp-looking fish or any other kind of colorless food. She knows what she wants, and if the fisherman hasn't done a good job of icing, she isn't going to buy his product, regardless of what the storekeeper does to try to freshen it. It has to be done before it reaches the storekeeper as well as afterwards, and he wants only the freshest fish to sell, because he knows it will sell the quickest and for the most money.

Protects Other Products

But perhaps those fishermen who know the value of icing fish do not appreciate the extent to which ice protects others of the nation's produce on its way to consumer tables throughout the United States. Just as Iceman's Ice protects fish piled deck-high on the fishing boat, it protects hundreds of other products including many fruits and vegetables, whose fine quality is insured by the guarantee of ice-cold protection all along the route. Ice alone provides the proper refrigerant for keeping foods naturally crisp and fresh, colorful and nutritious.

Nutritionists and health experts throughout the country have been preaching the ice doctrine in professional periodicals, at meetings of growers and shippers over and over again, trying to drive home to all Americans the need for perishable products to be displayed on ice in the neighborhood store, as well as on the way to that store.

Whether it's fish, meat, or certain fruits and vegetables—all, in order to preserve excellent quality, must be iced from beginning to end of the journey to the consumer's table.

Whether in the field, on the road, on the tracks, or on the sea, ice travels all over the world, performing its same work of protecting and preserving the foods which the nation's and the world's peoples must eat, to make them strong and well. Ice is Nature's health guardian, protecting in certain vegetables an amazing Vitamin C, ascorbic acid content, as well as nutrient value. Economical to buy, one of the most inexpensive of the nation's products, ice is a necessity which pays for itself in terms of protecting foods to the point where they are able to guarantee the highest maximum return in profit measures for their saleable qualities.

Gorrie's Ice Machine Story Told in Health Magazine

THE story of Dr. John Gorrie and his invention of the ice-making machine reached at least another quarter of a million people in September through the pages of "Today's Health" magazine, formerly called "Hygeia." It appeared in the form of a three-page article entitled "The Man Who Duplicated Nature," written by Francis X. Timmons, director of advertising and publicity for the National Association of Ice Industries.

Along with the title of the article, the first page carried a reproduction of the portrait of Dr. Gorrie and an artist's conception of Gorrie's original air-conditioning system for hospital rooms. The latter featured a block of ice suspended under a hood from the ceiling of a room.

Following the historical information, the story devoted a paragraph to the service performed today by the ice industry, both in homes and commercially. It said, in part, "15,000,000 tons are used in homes; refrigerator cars consume 13,000,000 tons carrying 98 per cent of all perishable fresh produce; the fish industry could not exist without ice, its needs requiring 6,000,000 tons each year."

Early Ice Harvest Days On Radio Program

A SKETCH of the early ice harvest days was the subject of a radio program on the "Cavalcade of America" series Tuesday evening, September 12. It depicted Frederic Tudor, pioneer ice man, who built up a huge natural ice business in New England and abroad starting about 1836, at the start of his career. The program was sponsored by the DuPont Co. over NBC. The story emphasized ice throughout, particularly for its use in beverages and for preserving foods and provided a very fine bit of promotion for ice.

Reports from Unit Ice Associations

Indiana Ice Merchandising Forum Meets

THE Indiana Ice Merchandising Forum met at a state-wide meeting on August 23 at the Lincoln Hotel in Indianapolis. The topics included merchandising of vegetable, fish, and poultry icing and these subjects were ably discussed by Richard Fisher of Ice Delivery, Inc. of Fort Wayne and B. H. Landing of Lake City Ice and Coal, Michigan City, Ind. Both speakers emphasized the importance of salesmen making a sincere effort to help the grocer, rather than merely sell a piece of equipment.

Mr. Fisher and Mr. Landing stressed the need for complete knowledge of the program being merchandised to the consumer. Much valuable information concerning the technique of selling perishable icing was conveyed to those present, and it is believed that the discussion will prove worth while to those in attendance.

G. Elwood Hookey of the Department of Distributive Education, Indiana University talked on proper selection of personnel. Mr. Hookey emphasized that, in face of another war emergency, it is highly essential that men be selected with great care in order that turnover during an emergency period be kept to an absolute minimum. Mr. Hookey's presentation pointed out the keys of proper and efficient selection which should form a guide in future selection procedures.

Illinois Managers Hold One Day Conference

TO MEET and discuss problems created by changing conditions, a managers' conference of Illinois ice men was held at the Abraham Lincoln Hotel, Springfield, Thursday, September 14. The adverse season coupled with unsettled and uncertain world conditions, the certainty that controls, prohibitions, scarcity of labor and materials, freezes, etc. are inevitable, all added to present problems, made this meeting of special significance for Illinois ice men. Twenty-two managers were present.

At a short meeting of the directors, it was decided to give up the idea of holding a merchandising field school and channel enrollees, if any, to the Missouri School at St. Louis, October 16 to 21. The directors also arranged for the annual convention of the Illinois Association to be held at the Abraham Lincoln Hotel, Springfield, Ill., November 27-29.

Indiana Association of Ice Industries

By ROBERT W. WALTON,
Executive Secretary

THE Indiana Association of Ice Industries cooperated with the Indianapolis Vegetable Growers Association, the Vigo County Fruit Growers Association and the Indiana 4-H Club in icing their perishables at the 1950 Indiana State Fair. These exhibitors utilized 40 feet of ice display cases as such exhibits demonstrated clearly the value of ice in preserving perishables. By contrast, other perishables exhibited in the Horticulture Building of the Indiana State Fair deteriorated rapidly, indicating a need for such icing for all exhibits in this building.

Previous to the State Fair the Indiana Association of Ice Industries cooperated with ice plants in Decatur County, Johnson County and Marion County where prize 4-H garden exhibits were iced at the local County Fairs. The practice of icing 4-H garden exhibits at 4-H and County Fairs is rapidly catching on in Indiana and it is hoped that the ensuing years will see more and more ice being used in this manner at other County Fairs.

On August 23, 1950 at the Lincoln Hotel in Indianapolis, the Indiana Ice Merchandising Forum met at a state wide meeting. The meeting topic included the merchandising of vegetables, fish and poultry icing and these subjects were discussed by Mr. Fisher of Ice Delivery, Inc. of Fort Wayne and B. H. Landing of Lake City Ice & Coal Co., Michigan City, Ind. Both speakers emphasized the importance of salesmen making a sincere effort to help the grocers, rather than merely sell a piece of equipment. Also, Mr. Fisher and Mr. Landing stressed the need for complete knowledge of the program being merchandised to the consumer.

The program also included a talk by G. Elwood Hookey, Department of Distributive Education, Indiana University. Mr. Hookey's subject was "Proper Selection of Personnel". Mr. Hookey emphasized that in face of another war emergency, it is highly essential that men be selected with care in order that turn over during an emergency be kept to an absolute minimum. Mr. Hookey's presentation pointed out the keys of proper and efficient selection which should form a guide in future selection procedures.

Indiana, not unlike other states, has experienced a severe decline of ice business during 1950. While no figures are available as yet, July tonnage was approximately 26 per cent below July of the previous year. There is hardly any question that much of this decline is due to a most unfavorable season weather - wise. However, there is evidence that a portion of the 1950 loss has been due to mechanical competition. Particularly significant is the wave of scare buying of mechanical refrigeration touched off by the Korean War. Although reinstitution of Regulation W will be a deterrent factor in future mechanical sales, these controls were not imposed soon enough to forestall this loss of business.

Ohio Ice Men Show Ice at State Fair

Exhibit of the Ohio Association of Ice Industries presented at the 1950 Ohio State Fair.

The Ice Industry

Northwest Association Of Ice Industries

ED H. SHEA, Executive Secretary

THE Fall Regional Meeting of the Northwest Ice Association will be held October 13, 1950 at the new million dollar—"Gaffney's Lake Wilderness." Early reservations indicate that this will be the largest attended regional meeting the Northwest Ice Association has ever had. It is expected a number of representatives and sales agents of manufacturers and jobbers of ice equipment and accessories will be present.

This could rightfully be called a pre-convention meeting; a fine representation from the Vancouver, Canada, dealers is expected to be present. This group will report on reservations made and details under way to perfect the annual convention of the Northwest Association to be held in Vancouver, Canada, in March, 1951.

In panel discussions, present day problems of the ice industry in the Northwest will be brought to the front; many important and valuable subjects for the maintenance of equipment; sales; advertising; accounting; and all other major departments of the retail and manufacturing of ice will be discussed.

Lake Wilderness is a place where anyone can relax as the fall breezes whisper, "nature's lullaby" through the trees of native firs, pines, and tamarack, sprinkled with the beautiful Canadian maples and lungs fill with that pure mountain air.

All Northwest ice men will enjoy meeting their friends and business associates in this beautiful and carefree setting.

Quick Cooling Plant Opened For Vegetable Growers

A NEW quick-cooling plant has been opened by Gamble-Robinson Co., in Brooklyn Center, Minneapolis, to serve vegetable growers. Opened in mid-July, the plant cools vegetables to 33 F before shipment to area distributors in ice cooled trucks.

Artesian water, kept at near-freezing temperature by mechanical refrigeration, cools the vegetables in an 8 by 26 foot cooling unit. Vegetables treated here go to Gamble-Robinson branches in northern Iowa, western Wisconsin, eastern North Dakota, points in South Dakota and throughout Minnesota.

Delta States Ice Association

R. N. MILLING, Executive Secretary

IT IS a genuine pleasure to announce our convention this year to be held at the Hotel Marion, Little Rock, Ark., November 13-15, 1950. All committees are functioning beyond the usual call of duty and plans for a banner event are already well in the making. The orchestra contract has already been signed—talent for the floor show assured.

Fast changing economic conditions and increased tempo due to the military program make it imperative that the ice industry keep step. Business sessions will be devoted to subjects of timely and practical interest. Reports and discussions will deal with the problems of the ice industry of today and tomorrow.

All hotel reservations as usual are being made through the association office in Monroe. All reservation requests will be acknowledged by the association and later confirmed by the hotel.

Indiana Ice Companies Show Displays at County Fairs

THE practice of icing prize 4-H garden exhibits at 4-H Fairs and County Fairs is rapidly catching on in Indiana. To date such exhibits have been iced at the Decatur County Fair, Johnson County Fair, Marion County Fair and Shelby County Fair. These exhibits have been made possible through the cooperation of Trusty Manufacturing Co. of LaPorte, Ind. who provided the association with 4-6 foot vegetable display cases, and the ice companies serving the counties involved. The companies participating were Greensburg Ice Co.; Alexander Ice and Coal Co.; Irvington Ice and Coal Co.; Daniel DePrez Mfg. Co.

The state association again cooperated with the Indianapolis Vegetable Growers Association and the 4-H Groups in icing their perishables at the 1950 Indiana State Fair. The Vigo County Fruit Growers Association also utilized 18 feet of Trusty display case in their exhibit.

Knight Moves to Terre Haute

C. O. KNIGHT, president of the Indiana Association of Ice Industries has left the Serv-Ice Co. of Jeffersonville, Ind., to join the Terre Haute Ice, Fuel and Cold Storage Co. of Terre Haute, Ind. Mr. Knight assumed duties of manager of the Terre Haute plant on August 14, 1950.

Production and Distribution Indiana Ice Plants

A RECENT survey among Indiana ice plants shows the following facts on production and distribution.

Average plant production capacity: 61 tons per day.

Average seasonal storage capacity: 700 tons.

Type of power used: electric 75 percent; steam 4 percent; diesel 21 percent.

Type of delivery system: company operated 52 percent; dealer 16 percent; both 32 percent.

Service Features

	Participating Companies—%
Sized ice	60
Crushed ice	97
Plant vendors	40
Station vendors	28
Canvas delivery containers	24
Paper delivery containers	40
Canvas and paper delivery containers	36
Appliance rentals	4
Stock of ice-using appliances	88
Cubed ice	24
Newspaper Activities	80
Radio advertising	24
Insurance plans for employees	60
Uniformed drivers	72
Union contracts	20

New Ice (?) is Hard as Rock And Slow to Melt

A NEW kind of ice, it is claimed by a Santa Monica chemist who invented it, is as hard as a rock and just about as slow to melt. Dr. Jagan Nath Sharma, a native of India and a graduate of the University of California, has taken out two patents on the process. The secret, he says, lies in adding tiny amounts of a chemical, flourescein, to the water before freezing it. In a demonstration, he placed a block of ice in the sun for several hours. Only a small amount of water melted off. He pounded it with a hammer. Only fine chips flew. Sharma plans to use it for lining refrigerator cars.

(The Editor would like to know how you get efficient refrigeration without heat transfer by melting.)

Ice Man of the Month

JOE C. THOMPSON of Dallas, Tex., president of the Southland Ice Corp., has been chosen by the editors of the local magazine "Oak Cliff" as Oak Cliff's Man of the Month for September. Mr. Thompson besides being president of the Southland Corp. is a former city councilman from Oak Cliff. He has been engaged in the ice business in Dallas for more than twenty five years.

Practical Refrigerating Engineer

NATIONAL ASSOCIATION PRACTICAL REFRIGERATING ENGINEERS

H. B. Branham, Pocatello, Idaho
Sergeant-at-Arms, National Association Practical Refrigerating Engineers

NEWS
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Check List Aids Engineers in Operating Analysis

AT THE 1950 Midwest Conference of the NAPRE, Professor H. G. Venemann, Purdue University, presented a list of questions and statements to aid refrigerating engineers in operating analysis. In addition to the questions he provided references to the NAPRE textbooks for students and those who wish to go deeper into the questions.

Finally two good examples were given to demonstrate the importance of the principles he previously stated. The material is printed in the present issue so that all members will have it available for reference and study.

A list of study references in the two NAPRE Textbooks gives valuable assistance to those who wish to pursue the subject further.

A refrigerating machine will produce maximum capacity and require minimum power when it operates at the highest practicable evaporating temperature and the lowest practicable condensing temperature.

Questions on Lowside Operation

Do you know:

1. That refrigeration is produced by transferring heat from the medium to be cooled to a liquid refrigerant?
2. That the liquid refrigerant is cooled by the evaporation of part of its own mass when introduced into a low pressure region?
3. How much of each pound is evaporated to cool itself?
4. How much of each pound of cooled liquid is available to refrigerate something else?
5. How many Btu. each pound of cooled liquid will absorb while refrigerating something else?
6. What changes occur to the cooled liquid while it is absorbing heat?
7. How many pounds of cooled liquid must be evaporated per minute, per hour, or per day to produce a ton of refrigeration?
8. The meaning of the term "ton of refrigeration."
9. How much space each pound of vapor occupies by the time it reaches the compressor?
10. What displacement is required of the compressor to give it a ton of refrigeration capacity?
11. That the evaporating temperature of the liquid refrigerant in the coils depends upon the pressure of its vapor in the coils?
12. That the vapor pressure in the coils depends upon the weight of vapor present?
13. That the weight of vapor present depends upon two things, (a) the rate at which the vapor is produced and (b) the rate at which it is removed?
14. That the rate at which the vapor is produced depends upon the quantity of heat per minute which is absorbed by the liquid in the coils?
15. That the rate at which the vapor is removed depends upon the volumetric efficiency and cubic feet per minute displacement of the compressor?
16. That the quantity of heat which is absorbed by the liquid in the coils is equal to the heat supplied by the medium surrounding the coils; and depends upon 3 things: (a) the surface area of the coils, (b) the temperature difference between the medium supplying the heat and the liquid absorbing it, and (c) the ability of the coil to transfer the heat?

Questions on High Side Operation

Do you know:

17. That the condensing pressure of a refrigerant vapor in the condenser depends entirely upon its condensing temperature?
18. That the discharge pressure at the machine, or at the inlet to the condenser will not give you the true pressure of the ammonia vapor if there is air or other gases present in the high side equipment?

19. That there is a way of obtaining the condensing temperature and thus the true ammonia condensing pressure?

20. That a discharge pressure higher than the true ammonia condensing pressure increases your cost of operation?

Questions on Getting from Low Side to High Side

Do you know:

21. That the low side vapor is drawn into the cylinder by suction?

22. That external work is required to draw it into the cylinder and to deliver it to the high side?

23. How to compute the work required to do this?

24. What is meant by the work required for isentropic compression?

25. What is meant by the work of polytropic compression?

Questions on Getting from High Side to Low Side

Do you know:

26. What is meant by a throttling process?

27. What is the purpose of the expansion valve?

28. What occurs to a liquid when throttled from high to low pressure?

Examples of Uneconomical Operation

Example No. 1:

Quite a number of years ago I was made chief engineer of a large ice and cold storage plant. Four compressors having a combined capacity of around 420 tons when operating at 20 psig. and 185 psig. manufactured 150 tons of distilled water ice per day. This consumed 270 tons of the available 420. (1.8 tons of refrigeration were needed to make 1 ton of ice.) The remaining capacity was used for dairy work, egg storage and general cold storage. A fifth compressor with a nominal rating of 25 tons at 20 psig. worked independently on sharp freezers which were maintained at —10 F. on a suction pressure of 2 psig. The load on the sharp freezers amounted to about 10 tons which just about equalled the capacity of the 25 ton compressor when operating at 2 psig. suction pressure.

Shortly before I took over the operation of this plant the company had built and leased another large freezer room and had piped it very heavily with 2 inch pipe coils. The suction line from these coils had been connected into the 20 psig. suction line leading to the four large compressors. The maximum load on this room was less than ten tons refrigeration, and while operating at 20 psig. (5.5 F.) its temperature was maintained near 20 F. After I had been around for about 30 days the lessee started to fill this room with butter and I was ordered to pull its temperature down to —5 F. I immediately protested and informed the management that to do this with the present "hook up" would cost the company hundreds of dollars per day by reducing the daily ice output from 150 tons to less than 40.

I estimated that for each pound per square inch drop in pressure I would lose 13.4 tons of compressor capacity, which represented 7.44 tons of ice. I estimated also that I would have to lower my suction pressure to 3 psig. (—21.2 F.) in order to hold the room at —5 F. This represented a total pressure drop of 17 psi or a loss of about 126.5 tons of ice per day. Of course I could have suggested that we cut out part of the storage room load instead of the ice load but that would have been like jumping from the frying pan into the fire. Of course, when I told the manager what this loss would amount to, he almost fell over, but he soon recovered with the satisfying thought that I was just a theoretical engineer without much experience. He told me to lower it gradually and see what happened. So I cut down on the expansion valves on the ice tanks until the suction pressure was reduced to 15 psig. The room temperature dropped to about 15 F., and my ice output dropped about 37 tons per day. A few days of this satisfied the management that something drastic had to be done. I came up with a very simple solution to the problem and became a hero.

Do you know what I did? I ordered fittings and valves so that the suction line from this freezer could be changed over to the 2 psig suction line. After making this change I operated this low pressure line with a 40 ton compressor, one of the four larger compressors, and transferred the 25 ton compressor onto the 20 psig suction line. This gave me 405 tons overall capacity on high suction work which enabled me to go back to near full production.

Moral. When operating a plant with several compressors with suctions mains operating at two or more pressures, do not cut a low temperature room into a high suction main. Remember that the capacity of a plant is almost directly proportional to the **absolute suction** pressure at which it operates. Absolute suction pressure equals gauge pressure plus barometric pressure (14.7 psi).

Example No. 2:

During the prohibition era a beverage company formerly a brewery added an ice cream plant to its bottling and ice-making departments. This ice cream plant had a hardening room which had to be held at zero degrees or lower.

Before the ice cream plant was added they were making 22 tons of ice per day, after it was added they could make only 11 tons per day. The engineer and management were nonplussed. They had gone to the expense of putting their compressor in first-class condition cylinder rebored, valves reground, new piston rings, etc. The engineer had been with them in the good old days when they made beer. He knew the plant from top to bottom, and could make it perform if anybody could—but he was just as much puzzled as the rest.

The management was losing the profit on 11 tons of ice per day at a time when they could sell more than 22 tons per day. I happened into the town after the ice season was over and was asked to inspect their plant, and tell them if I could what their trouble was.

The explanation was simple. They had cut down the capacity of their 65 ton compressor to 33.8 tons by adding on a hardening room which had to be held at zero degrees or lower.

Explanation

Before Installing Ice Cream Department

Compressor capacity at 20 psig	65 tons
Cold storage load	8 tons
22 tons ice making load	36 tons
Total load	44 tons
Surplus available capacity	21 tons

After Installing Ice Cream Department

Compressor capacity at 5 psig. 52% of 65	33.8 tons
Cold storage load	8 tons
Ice cream load (maximum)	8 tons
Balance available for ice making	17.8 tons
Total load	33.8 tons

At 1.64 tons refrigeration per ton of ice making they were able to make only 10.8 tons of ice daily.

This situation was remedied by installing a separate compressor for the ice cream department, but in one summer of operation they had lost more than $4,000.00 of anticipated profits.

References in NAPRE Texts on Measuring Refrigeration Plant Performance

REFRIGERATION THEORY AND APPLICATION by H. G. Venemann.

Test Data and Instruction for Tracing the Cycle Pg. 42, and Fig. 9.

Properties of the Ammonia during cycle Table I, Pg. 43.

Calculations of Results of a Sample Test, Pages 49 to 60.

Analysis of Actual Plant Performance during above test, Pages 63-67.

Test Data and Computed results of 20 tests on a York 5x5 compressor, Pages 68-71.

Analysis of Compressor deviations from the Ideal. Pages 73-80.

Performance of duplex VSA compressors, Tables III, IV, V, Pg. 81-82.

Performance of 10½x18 HDA compressor. Table VI., pg. 84.

Performance of VSA Freon 12 compressors. Table VIII Pg. 85.

Performance of CO_2 compressors, 50 to 100 c.f.m. Table VIII. Pg. 86.

Performance of Household SO_2 Compressor. Fig. 17. Pg. 88.

Theoretical Performance Characteristics of a Constant Displacement Compressor Pg. 232.

Capacities and BHP Requirements of a 5½x5½ 2 cylinder ammonia compressor Pg. 243.

PRINCIPLES OF REFRIGERATION, by Wm. H. Motz. (1947.

Refrigerating Effect of Ammonia, Btu per lb., Table 22, Pg. 140.

Pounds of Ammonia per min. per ton of refrigeration, Table 23, Pg. 142.

Theoretical Displacement of Ammonia Compressors, Table 24, Pg. 144.

Volumetric Efficiencies Due to Superheat, Table 25, Pg. 146.

Volumetric Efficiencies of H.D.A. Compressors, Table 26, Pg. 147.

Factors of Calculating Vol. Eff. due to Clearance, Table 27, Pg. 149, and Fig. 27, Pg. 154-155.

Actual Displacements of S.A. compressors, Table 28, Pg. 152.

Volumetric efficiency curves, Fig. 28. Pg. 154-155.

Theoretical IHP per ton, Table 29, Pg. 158.

Mean effective pressures, Table 30, Pg. 160.

Guy King to Santa Monica

IN LATE August, Guy King and his family returned from Hawaii to the west coast. For three years he had been teaching refrigeration in a school in Honolulu.

Formerly Mr. King was instructor for the San Francisco Chapter and a teacher in local schools. He expects to reside in Santa Monica where he has taken a post in the trade school of that city. Best wishes of Mr. King's many friends and business associates go with him in his new position.

N A P R E

Question Box

H. G. Venemann, Professor of Refrigeration, Purdue University and chairman of NAPRE Educational Committee, answers members operating problems monthly in this column. Send questions to Chairman H. G. Venemann c/o Purdue University, West Lafayette, Indiana.

Cold Pipe Insulation

Question No. 859: We have some suction lines insulated with two layers of 1 in. hair felt which is supposed to be good for temperature down to 5 F. The lines carry ammonia gas at 20 psi and the condition of the insulation is not good although it was originally installed by experts. Can you give any indication of what might be causing the trouble?—S.L.C.

ANSWER: You say that the insulation is not good although it was originally installed by experts. You do not say what the trouble is with the insulation. I presume that frost has begun to show through, or that cracks have appeared due to the expansion of the water as it froze within the insulation. Perhaps large chunks of it have fallen off. All of these things have happened to insulation on low temperature suction lines.

The problem of insulating suction lines is one which has received the attention of refrigeration engineers for many years. In 1941 the Industrial Mineral Wool Institute published "Specifications for Mineral Wool in Low Temperature Installations." These specifications were formulated by a special committee selected for their qualifications and many years experience in the cold storage insulation field. They were adopted by the industrial mineral wool industry which testified to its confidence in the material and application principles set forth in the specifications to insure the maximum in satisfactory performance and long service. I recommend a copy of these specifications to our members.

For temperatures ranging from 5 to 15 degrees they recommend a total built of thickness of 3 inches. Under applications, the specifications call for the clean dried pipe surface to be first wrapped with a layer of 15 pound saturated rag felt, mopped with hot (180 to 200 degree melting point) asphalt, and lapped at least

3 inches at all joints. The initial layer of one inch thick mineral wool felt shall then be applied circumferentially around the pipe, securely tying it with jute twine wrapped spirally on one inches centers. Two more layers of 15 pound saturated rag felt, and one inch thick mineral wool shall be applied as before. Over the final layer of mineral wool felt there shall be applied two additional layers of 15 pound rag felt with 3 inch laps, mopping each layer separately with hot asphalt. All of this shall be covered with a jacket of No. 28 gage galvanized sheet metal or weatherproof roofing felt. Separate pieces of sheet metal used shall be lapped 3 inches against the weather at all joints and permanently secured in place with one-half inch galvanized iron bands spaced on eight to twelve inch centers, machine stretched and crimped. If roofing felt is used as a jacket, all joints shall be lapped as above and the jacket permanently secured in place with copper or soft galvanized wires, spaced on six to eight inch centers.

Other parts of the specifications refer to preparation of surface, fittings, finish on valves and fittings and painting.

The application of hair felt would be similar to that of mineral wool.

From these specifications it can be seen that everything is being done to prevent the penetration of moisture from the room into the insulation. If the experts who applied your insulation had used one inch more and had done a good job of waterproofing, it would have lasted a great many years. You do not state how long your insulation has been in service, but even the best will not last forever.—H.G.V.

Opening Ammonia System

Question No. 860: I have read the published report of another case where workmen were injured by escape of ammonia when they removed the head of a compressor. Would it not be a good idea for workmen to adopt a standard procedure of putting on an ammonia mask whenever they open an ammonia system? —T.L.A.

ANSWER: I would not go so far as to say that a workman should put on a gas mask every time he opens an ammonia system. But I will say that he should exercise every precaution so as not to risk injury to himself and others. Before removing the head of a compressor he should be certain that the valves in the suction

and discharge lines to the compressor have been closed, that they do not leak, and that the pressure in the cylinder head and crank case has been relieved. He should not only pump a vacuum on the crank case and discharge the gas remaining in the cylinder to the outside (preferably into a bucket of water) but he should take plenty of time for the gas in the crank case oil to escape.

If a compressor will not pump for one reason or another and the workman desires to remove the cylinder head, he will have to discharge the gas remaining in the compressor and crank case to the outside without the benefit of first evacuating the low side, which means that he will lose more of the ammonia, and that it will take longer for the gas to escape from the oil in the crank case. No workman should work around a compressor while ammonia gas permeates the air without using a gas mask. If the air cannot be cleared then use the mask. I do not think that a workman should risk a sudden blow of ammonia when opening a system due to pent up gas even with a mask. No, a workman does not always have to put on an ammonia mask when he opens the system, but he must be sure that he and others will be perfectly safe before doing so.—H.G.V.

Rubber Gaskets

Question No. 861: We have a multi-pass horizontal shell and tube condenser in which rubber gaskets are used as seals between the heads and tube sheets to seal the different water passes. Wherever this rubber gasket material touches the end of a tube it appears to be corroded away. Is it possible that there are types of rubber which form a corrosive combination with the condenser water? How could these be avoided when securing gasket material?—R.V.C.

ANSWER: Referring to the second sentence of this question, it is not clear whether it is the tube or the gasket which appears to be corroded. I have discussed this question with several old time service men and find that their experiences vary. In some cases the steel tube-head and tubes have been attacked, in others the webs or passes of the cast iron water heads have been worn down, and in others the rubber gaskets have deteriorated. The engineer at the ice plant has several stands of 8 inch multi-tubular condensers containing seven two inch OD tubes which have been in operation for more than ten years without any corrosion problems whatsoever. He cuts his own gaskets out of one eighth inch red sheet rubber, Bay State brand.

Vic Cox who does most of the repair work on ammonia systems around here has gotten away from corrosion troubles with certain waters by using an eighth-inch asbestos gasket. He recommends that the ends of the cast iron passes be given a heavy coat of white lead. The asbestos sheet was purchased from the Garlock Packing Co. Some rubbers are attacked by sulphur, and of course sulphur in water will form sulphurous acid which is very corrosive to steel and iron. One may be more certain to avoid gasket troubles by using a synthetic rubber which has not been cured by a sulphur process.

I believe that any of the larger and older gasket manufacturers will be able to solve your difficulties. They have run up against this problem thousands of times and, no doubt, have chemists available to analyze your water and make the proper recommendations.

On your part you should see that the water head fits properly. If the ends of the webs have worn in spots they should be built up and the head resurfaced. Perhaps the head is warped permitting water to leak past the gasket. This will cause erosion.

I would like to have others write us their experiences, especially if they have solved the gasket problem. —H.G.V.

Discussion on Question 853

I differ with the answer given to the question about a liquid sub-cooling coil placed in the water pan of an evaporative condenser (Ice and Refrigeration Aug. 1950, page 44). Sub-cooling coils are efficient. Obviously we cannot expect the saturated temperature of the refrigerant liquid to approach the temperature of the water by much less than 15 deg. That is to say, with 83 F water we cannot expect much better than 95 F refrigerant—185 lb. head.

However, if we place a sub-cooling coil in the sump we can reduce this 15 deg. approach to about 5 deg. approach, with a resultant head of only 160 psig. For such a sub-cooling coil, we recommend a fin coil made of 2 in. pipe with 7 in. diameter fins on 1½ in. spacing. The fins are very heavy, and the 2 in. pipe really acts as an auxiliary receiver, if the occasion should demand it.—A.W.B.

Membership Race Ends October 15: Share in the prizes by getting those new members before the close of the contest.

New Questions

Answers in November Issue

Heavier Condenser Tubes

Question No. 862: In a Freon-12 condenser which requires retubing, would there be any appreciable difference in performance if the condenser were retubed with 16 gage 1 inch O.D. tubes instead of the present 18 gage 1 inch O.D. tubes? Should the tubes extend beyond the tube sheets before they are expanded or should they be cut to exact length? Is there a formula covering this or is it based on experience?—J.W.B.

Air Distribution

Question No. 863: Will you please show the formula for the throw in feet and the quantity in cubic feet per minute of air from a tapered circular nozzle size 8 inches x 12 inches x 16 inches long with four tenths inch water pressure on the nozzles? — J.W.B.

Conditioning Candy Room

Question No. 864: Please advise us how to control humidity in our candy room where we have coil type refrigeration with thermostatic control. We have drip pans under each coil, which pick up moisture and causes our humidity to be too high. The temperature of our room is from sixty to sixty-three degrees. Our relative humidity is running from sixty-eight to seventy-two percent. —R.V.G.

Power Engineers Honor Herzog

THE National Association of Power Engineers at its annual convention in St. Louis elected John Herzog of San Francisco to the office of National President. Election to top office followed important work by Mr. Herzog in the local and national affairs of the organization over a long period of years.

Mr. Herzog who is a charter member and effective worker in the San Francisco Chapter of NAPRE is chief engineer of the San Francisco Brewing Corp.

Plan Your Vacation
N.A.P.R.E.
National Convention
Los Angeles, Calif.
November 28 to
December 1, 1950

News Notes and Activities of Chapters

NAPRE Department

Los Angeles

By Fred Herr

IN A new setting but with the traditional ham and beans again constituting the savory feature attraction, the initial session of Los Angeles Chapter's fall series of meetings was scheduled for the night of September 20 in the form of the annual Ham-and-Beans Dinner.

Because the yards of the Pacific Fruit Express (which firm annually for the past half dozen years has provided the meeting place) were torn up due to reconstruction work, it became necessary to seek other surroundings. Frank Eccleston, chairman, and the members of the entertainment committee—Ed L. Nelson, J. C. Schobert, Frank Muzzy and K. H. Benedict—arranged to hold the dinner in the Terminal Club, where the monthly meetings are held.

The ham-and-beans dinner has been used as the opening wedge for the chapter's fall work period for a number of years. Annually this affair has attracted well in advance of triple the average meeting attendance. This year was no exception as Secretary Donald H. Byl was able to report well in advance of the dinner night that reservations for considerably more than 100 members and guests has been received.

As the first item on the agenda, the members and guests took their places at the long tables and were served steaming platters of fragrantly sizzling ham hocks and beans. If the faces of the waiters had a familiar look, it was not too surprising, because they were all members of the PFE staff and members of the chapter, who for this one night each year double as waiters and bus boys. Even National President Emmett Quinn, himself a PFE'r, and currently treasurer of the chapter, was seen to lend a hand when things got rushed around the bean kettle.

A short business session following the gustatory phase of the program was held to a minimum by President Dale Rycraft, who wielded a peremptory gavel along a pre-arranged plan to keep speakers within reasonable limits and all business to a minimum.

Among the business items was a report given on the present status of the Jesse C. Blair Memorial Foundation. This movement, which is headed by Art Hess, who originally suggested the idea, has for its objective the establishment of laboratory facilities, a research library and increased and modernized facilities for refrigeration instruction at the Wiggins Trade School in Los Angeles. The membership was glad to hear that this project is moving ahead with gratifying success. A more detailed report will be made available shortly, it was announced.

Entertainment Committee Chairman Eccleston rounded off the evening's festivities with an entertainment program as part of which vocal, dance and comedy acts were presented.

The chapter with great regret received notice of the death of J. E. Boddie, a member for more than 23 years. In recent years Mr. Boddie had been living in Prince Rupert, British Columbia.

Memphis

By Charles Conley

THE traditional water melon party of Memphis Chapter brought 85 members and friends to the auditorium of the Memphis Cold Storage Warehouse Co. True to form Doug Smith arranged for a choice supply of melons and the attendants showed their appreciation by consuming a total of 1260 pounds of the appetizing fruit. The night and the temperature were just right for the party so the crowd enjoyed a pleasant visit with old friends while the melons disappeared.

"Tennessee Holiday", a movie travelog produced by Esso Standard Oil Co., was the feature of the entertainment program. This fine color movie, presented by Virgil Cox of that company, proved to be a very worthy companion of their earlier films which the chapter has enjoyed in the past.

The educational program of the chapter got under way on September 6. The special speaker was Lewis J. Wells, chief engineer of the Ford Motor Co. During the late war he was supervisor for industrial training for that section of the company devoted to production of military equipment. He talked on "The Operating Engineer" and outlined the characteristics and requirements of a good plant operator. The importance of good housekeeping and safety were stressed among the different factors Mr. Wells covered in his discussion. In conclusion he told why he feels that the good operating engineer is at all times ready for a better job.

Dean W. R. Woolrich of the Engineering College, University of Texas was a brief visitor in Memphis recently. On his way to Michigan he interrupted the drive to stop in and say hello.

A resolution was passed by the members and officers of the chapter to give the Mayor of the City of Memphis every assistance possible in the Civil Defense Program and in the Crusade for Freedom.

The subjects of the educational program during the current year were recently announced to the membership. Future meetings will deal with the following subjects:

Heating and Ventilating
Refrigeration Compressors
General Plant Efficiency
Automatic and Safety Controls
The Common Refrigerants
Plant Maintenance Methods
Maintenance of Electric Motors and Controls
Low Temperatures and Cold Storage
Heat Exchangers
Water Treatment Methods
Air Conditioning Applications
Air Conditioning Problems
Air Conditioning Maintenance

Fresno

By M. Pedersen

The discussion on plant problems at our last meeting returned again to experiences and analyses of compressor ring troubles. After discussing the surrounding details of one especially troublesome job it was the consensus that the rings were installed without sufficient end clearance. This was not too serious during cooler weather but when the load came on with the summer heat the head pressure reached a peak accompanied by high cylinder temperature. The expansion of the rings was too great to be accommodated by the clearance allowed which caused undue friction on the cylinder walls.

The twenty-fifth anniversary of the chapter was celebrated with a dinner at the home of Mr. and Mrs. C. P. Shupe. All of the original signers of the charter who could be located were invited to attend this meeting. Everything was done to make this an outstanding affair in the chapter's life. A complete report is to be published in the next issue.

Tulsa

By George Koehne

The members of the chapter and their families had a most enjoyable water melon party. As at Memphis this affair has become traditional. It furnishes an excellent occasion for getting together in the summer time for entertainment and recreation away from the problems of daily operations. We are looking forward to the opening of the fall season of the chapter.

Chicago

By E. B. Jones

The officers and members of the Educational Committee have been continuing regular meetings during the summer recess. Led by President Leslie Clifford a good program has been arranged for the coming year. The refrigeration course will be presented by a number of men who are experts in the particular portion of refrigeration to be covered.

In some cases these subjects will be amplified by special speakers and allied subjects will also be presented in special talks. Other desirable features have been incorporated in the program launched at the first meeting of the new season on Tuesday, September 19.

In response to member suggestions the schedule will bring more plant visits and inspection trips. The first meeting was held at the Continental Ice Cream Co. plant on the southwest side of the city.

Plan Your Trip to Los Angeles Convention Hollywood Roosevelt Hotel Nov. 28-Dec. 1

A REAL treat awaits the engineers and their wives who attend the NAPRE Convention at Los Angeles. The engineering program will present those subjects of greatest and most timely interest. The special events that have been arranged for the women will in themselves repay the effort of attendance. Added are enjoyable affairs for the whole group put on with the attractions that are unique because of the great assembly of talent available there.

Engineering Program

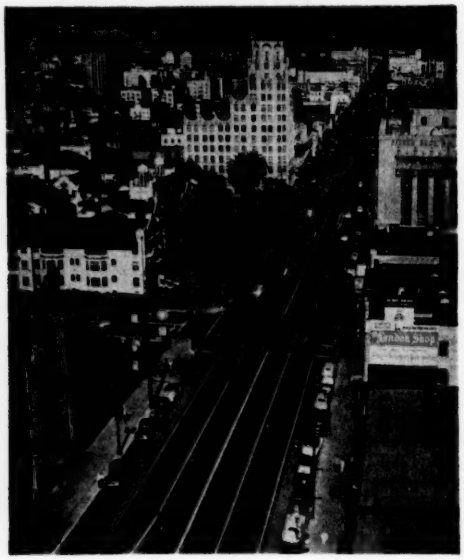
New features will add value and interest to the program. These include some dramatic skits to give a lot of information in easy to take form. The first one on the program deals with the selection of evaporators for cooler and freezer work. The Bureau of Refrigeration Information will be accorded one session at the convention where the attendants can bring their problems and questions for solutions grounded on years of experience and knowledge. The leader in this event will be M. E. Bell, Seattle together with his cooperating experts.

Recent events have underlined better maintenance procedure. The "Do's and Don'ts of Electrical Maintenance" will be explained by Regis Gubser, Los Angeles. The fact that this presentation will be completed illustrated with actual equipment will add to the excellent treatment Mr. Gubser gives the subject.

Professor H. G. Venemann, Purdue University, believes that refrigerating engineers should be well informed about the various phases of their industry. He will discuss the large centrifugal systems now being widely applied for large scale refrigeration duty. In the years to come more and more men will be operating equipment of this type.

As an answer to the interest in mechanical refrigeration applied to refrigerator cars, J. F. Daly, Santa Fe Railroad, will give performance data on a car that has been widely operated and tested. "The Erection and Testing of Refrigerating Equipment" is always a prime subject for refrigerating engineers. Many plants are continually being modernized, extended and new plants are being erected. From his wide experience in the field, William Orton of San Francisco will present this subject.

Professor Harold Hayes of Santa Clara University is the instructor of the San Jose Chapter. He knows the information which is of greatest benefit to operating engineers and other associates in the industry. Also he keeps up with new developments and will present one of these in his paper on High Vacuum Produce Cooling.



A view of Hollywood Boulevard from the Roosevelt Hotel shows some of the landmarks on that famous thoroughfare. Grauman's Chinese Theatre is at the left and close by is the Radio Capital where many of the national shows originate.

In response to a widely expressed desire there will be a very informative paper on the subject of "Modern Fruit Storage Methods and Results." Lloyd Ryall of the U. S. Department of Agriculture Station at Fresno who has wide experience and knowledge in this field will present the well illustrated discussion of this subject.

In general the record of the refrigeration industry is good in maintaining safe, reliable plants for producing the refrigerating effect. Yet knowledge and vigilance have been desirable and probably will receive greater emphasis in the months ahead. Recognizing this the program devotes a section to the subject, "Protection of Life and Property in Refrigeration Plants." The part on "Bursting or Breaking in Vessels, Lines and Machines" will be presented by Elmer Johnson, Los Angeles. From his work as instructor of the chapter for a considerable period, the people in that territory are familiar with the way he develops a subject. The attendants from elsewhere will also get a lot out of this discussion which is accompanied by two other parts: "Fire Prevention Methods" and "General Causes of Injuries."

Low Temperature Problems in Skit

The trend toward lower temperatures in many phases of refrigeration highlights the value of a skit that will be presented on the subject of "Low Temperature Problems and Headaches." The treatment given this subject will undoubtedly enable the hearers to avoid many headaches in their future operations.

All of the educational presentations will be well illustrated, a fact which aids retention of the material presented. At the same time it enhances the interest when the matters are presented. The schedule is not crowded despite the amount of ground it covers in the numerous phases of refrigeration. Sufficient time will be given for adequate development of the subject plus discussion and questions on particular items and problems.

Entertainment

The Los Angeles Convention Committee has underscored the information about entertainment furnished to the national office. They guarantee that a high point will be reached in their entertainment program because of the unusual supply of talent available in the area. They point out that the convention is being held in the entertainment capital of the world. That in itself they feel substantiates their guarantee.

Furthermore they emphasize the special events they are planning for the women. At the risk of generating a demand for the convention to return to Los Angeles next year they are going all out to fulfill promises and expectations.

An added attraction is the fact that the tickets for the entertainment events will be reasonably priced. The convention attendants, therefore, can look forward to a big package at economical cost. The group events including the annual banquet and a special Hollywood evening will bring everyone together to enjoy themselves and give them a welcome change from the engineering sessions.

In the Stretch on Membership Contest

THE finish of the 1950 membership contest on October 15 is close at hand. The work up to that time will count for the chapters and the individuals toward the trophies and prizes to be awarded at the Los Angeles Convention. Reports postmarked up to midnight on that date count in the final results.

If past contests are any criterion for this year, some chapters and a number of individuals will be working right up to the finish line and the final week-end will witness quite a drive. In fact this will probably be true more than ever in the current race because of the valuable individual prizes in the pyramid.

Prizes are Valuable

One of them is shown in the illustration, and any wife can tell her husband about the value and desirability of 4 dozen cans of the best grade of tuna fish. There are many other very fine prizes to reward the two men in the large and the smaller chapters who bring in the most members by October 15.

Included in the list are an auto robe, two hams, Westinghouse toaster, a case of Heinz 57 foods and two hand tooled leather belts. That big salmon from Puget Sound should be worth a considerable amount of work and the case of frozen foods will be an appetizing accompaniment. Oranges from Colton and apples from Yakima are both prize packages at any time. Then there is the generous stock of sugar and oil. It all adds up to make the current contest the most productive one in years for the members who get out and work.

At the same time the accomplishments of the contest workers also pile up points for their chapters. These count heavily in the race for the fine trophies to be awarded for the first time this year. Every chapter will want to gain the advantage of a first year win and lead the race for final possession. Keep in mind that there is also a bonus for renewals which adds to the value of new members in figuring the final result.

Renewals Mean Bonuses

Where the percentage of renewals in the chapter is high the points count practically double so it is important to make a real drive to secure all possible renewals of current memberships before the deadline on October 15. In all cases the percentage of renewals is added as a bonus which multiplies the number of points awarded for new members.

The case of tuna being presented here by John Tripps (right), official of the French Sardine Co., San Pedro, Calif., to Rudi Kettler of Los Angeles Chapter NAPRE, constitutes one of the prizes contributed for the Pyramid Club of the National membership drive. It will be awarded, among others, to the lucky winners at the National convention in Hotel Roosevelt, Hollywood, Calif., in November. The case contains 48 cans of the Star-Kist white meat tuna, packed by French Sardine Co.

NAPRE Department

Remember there are two chapter trophies and two pyramids. Thus the contest is equitable for both large and small chapters. There is still time to get those new members and cash in on the prizes.

Refrigeration Engineer for Panama Canal Service

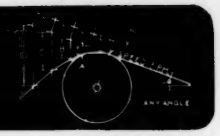
THE office of The Panama Canal advises that there is a vacancy in the position of mechanical engineer, refrigeration, for duty in the Panama Canal service on the Isthmus of Panama. This position is in Grade GS-9 at a salary of $5,750 per annum, and on a 40-hour week basis. The services of a suitable applicant are urgently needed in order that the present engineer may have the longest possible time for training this replacement prior to the incumbent's entry into military service. Free transportation to the Canal Zone is provided the appointee and his immediate family.

Applicants must have completed a 4-year course in recognized school with major work in the field of mechanical engineering and special emphasis upon a course in refrigeration; not less than one year's graduate study in acceptable research work; and three years' professional experience. They must also be American citizens in good physical condition, and not over 45 years of age, this requirement being waived up to 62 years for persons entitled to veterans' preference. Those interested are urged to communicate with the "Chief of Office, The Panama Canal, Washington 25, D. C." for details and application blanks.

Nels Rosberg Deceased

A HEART attack suffered in his office on August 24 proved fatal to Nels H. Rosberg, San Francisco, head of his company of consulting refrigeration engineers and contractors. He was 58 years old. A charter member and past president of San Francisco Chapter he had been long devoted to organization activities and affairs. During the 1930's he was in Los Angeles as chief engineer of the California Consumers Corporation and served as president of the chapter there in 1936. Later on returning to San Francisco he set up his own company which handled important construction contracts in refrigeration. and especially frozen foods. Mr. Rosberg is survived by his widow and two daughters.

ENGINE ROOM POINTERS –



Value of Unbiased Tests

"A wise man sees as much as he ought, not as much as he can." (An old proverb.)

"To observations which ourselves we make, We grow more partial, for the observer's sake." (Another old proverb.)

WE ARE all familiar with tests that are sometimes made for manufacturers and prospective users or buyers. One of the objections to many of these tests as performed today is the partiality that may exist in the minds of the paid observers who do the testing. Let us say that a certain manufacturer employs a research man to run tests for him. Let us also suppose that the research man knows that the manufacturer wants the results of the tests to be favorable. It will be difficult indeed for the research man to be impartial.

What would you do if you were a research man? If you wanted to be helpful to your employer, and if you knew that favorable "findings" would be beneficial, are you sure you wouldn't be as agreeable as an "authority" on the witness stand? Have you ever known an "authority" on the witness stand to possess beliefs or opinions that were harmful to the man employing him as an "expert"? Is it just a coincidence that the expert employed by the plaintiff almost invariably agrees with the plaintiff while the expert employed by the defendant almost invariably agrees with the defendent?

Perhaps the writer is unnecessarily cautious in using the word "almost" in the preceding sentences as this writer has never known one of these authorities to disagree with his employer, but, possibly, such rare men are in existence. At any rate the writer trusts he has made it clear why truly impartial tests are so valuable. The trouble is, how are we to know that the tests are truly impartial?

This is one of the reasons why it is sometimes so difficult for a new concern to get a start. Verbal claims and "authoritative tests" are apt to be viewed with equal suspicion. The cautious buyer, like the late John D. Rockefeller, Sr., asks, 'Who guarantees the guarantor?" Year upon year of dependable service must be rendered before many seasoned purchasers will say to the maker, "I'll take your word for it."

Some readers may think that this matter of partiality is peculiar to our own age—that our ancestors were not troubled with it—but not so. Take another look at the old proverbs, above. The author of the first one is unknown, but the second one was written by a man who lived over two hundred years ago—Alexander Pope.—F.W.S.

Natural Gas Supply

MANY users and prospective users of natural gas are "afraid it won't last long" because, in general, it is such an excellent bargain. This writer has done some delving into the subject matter and he figures that, at the present rate of consumption, natural gas will last at least 36 years—in the United States.

Proven reserves amount to 180 trillion cubic feet. But, 180 trillion doesn't mean a thing to most of us as a mere number, so the writer did some figuring and he finds that a gas tank large enough to hold 180 trillion cu. ft. would be 11.6 miles high and 11.6 miles in diameter. How high is 11.6 miles? It would take 61 Eiffel Towers, one on top of the other, to reach that high, and the Eiffel Tower is 100 ft. high.

Mt. Everest, the highest mountain in the world, could easily be placed inside a tank 11.6 miles high because Mt. Everest isn't half that high. Mt. Everest is only 5.5 miles high. All of which should assist in calming any fears about natural gas "not lasting long".—F. W. S.

Poor Packing Does Not Pay

WHILE inspecting a plant the other day the writer saw an example of a badly scored shaft due to the use of a poor packing. On investigation it was found that the type of packing that had been used is all right as long as it is kept well lubricated. But in that type of packing as soon as lubrication fails and the packing dries it begins to wear and to cut the shaft or rod just as in the example already cited.

It therefore is well to give this point careful consideration before selecting any packing for an important stuffing box. Be sure that, even when dry, the packing will not have a tendency to cut. In the "old days" packings were made tight in order to prevent leakage, and in many instances they are still being made too tight. As a result the power loss even for small packed stuffing boxes commonly amounts to one-half of one horse power, and even more.

Operating the machine under such adverse conditions can therefore easily cost $5 or $10 in a few months for power alone on account of the extra fuel required, and then at the end of that time the operator may find that he must either have his shaft or rod turned down smooth again, which will cost several more dollars, or, he will be obliged to buy a new shaft or rod.

Poor packings are expensive and it is false economy to make use of them. —W.F.S.

Using Long-Handled Wrench

AS SOME readers may recall, some time ago an article by this writer was published in which the writer said, "Don't slip a pipe over the handle of a wrench to make it longer because that is poor practice". Then he added that it is all right to use an extra long wrench for "unscrewing."

But a letter by a reader just came in questioning the use of a long wrench even for unscrewing. The critic says, "I have seen quite a few nuts twisted completely out of shape in a way which locked the entire assembly by putting too much leverage into action." To which this writer replied:

"I have never known of such an occurrence, but it may be that it could happen. If a nut absolutely refuses to come off it is often cut off with a hack saw or flame cutter, but, in my own experience, only when the nut refuses to budge.

"Where I originally got the idea was from my railroad experience. I was in the maintenance department. When unbolting rail joints one common method is simply to break off the nuts with a maul, which is quicker than any other method. They don't bother to unscrew them, even with an extra long wrench, but if such a wrench should be used, it could do no harm."—W.F.S.

Refrigerated Warehousing Industry

NATIONAL ASSOCIATION of REFRIGERATED WAREHOUSES

Division of American Warehousemen's Association

Executive Offices
TOWER BUILDING, WASHINGTON 5, D.C.

Executive Vice-president
WM. DALTON, WASHINGTON, D.C.

Secretary
JOS. H. COLQUITT, WASHINGTON, D.C.

President
J. L. GAGINI, OMAHA, NEB.

Vice-president
J. P. JOHNSON, WASHINGTON, D.C.

Treasurer
WM. A. MOORE, NEW ORLEANS, LA.

THIS MONTH IN BRIEF

A seven-point plan of action to prepare the refrigerated warehousing industry for war emergency operation has been approved by the Emergency Plans Committee of the National Association of Refrigerated Warehouses.

The occupancy of both public cooler and freezer space increased as expected during August, food holdings showing an increase of 200 million pounds for the month.

Research on storage and transportation of fruits and vegetables by the U. S. Department of Agriculture has discovered economies in the use of various materials and equipment, resulting in protective savings for shippers.

A bulletin on the freezing and storage of oysters gives details on proper processing and handling as a means of retaining their maximum freshness and flavor.

Warehousemen Recommend Plans For War Emergency Operation

RELEASE of a recommended 7-point plan of action to prepare the cold storage industry for war-emergency operation was a feature of the recent meeting in Washington held by the Emergency Plans Committee of the National Association of Refrigeratered Warehouses.

Covering every phase of warehouse operation, the plan suggested specific action on such matters as: manpower; repair and maintenance; space; plant defense and protection; emergency plant operation; government regulation; and industry coordination.

Refrigerated Warehousing Emergency Recommendations

The following recommendations were compiled by the Emergency Plans Committee of the National Association of Refrigerated Warehouses in meeting in Washington, D. C., July 1950. The committee consists of the following: V. O. Appel, chairman, Chicago; G. D. Allman, Chicago; Herbert Farnsworth, Boston; W. C. Hudlow, Jr., Chattanooga J. P. Johnson, Washington, D. C. Edwin M. Neyson, St. Louis; Allen Rushton, Birmingham; M. W. Young, San Francisco; R. C. Muckerman, St. Louis; A. N. Otis, New York City.

1. Manpower

a. Mechanize wherever possible.

b. Use available labor as efficiently as possible.

c. Impress upon local draft boards and government agencies concerned with manpower essential nature of cold storage work, necessity for maintaining adequate working space. Learn draft regulations, exemptions, etc.

d. Physical examinations for all employees, assign each work he can do well while at same time utilizing his full physical capacities, help those with remedial difficulties to get necessary treatments.

e. Impress constantly upon employees essential nature of the work they are doing. discourage shifting to other industries.

f. Adequate training and safety program in operation.

2. Repair and Maintenance

a. Check plant and equipment for needed repair and maintenance work, do work now while parts and labor available, get everything in maximum condition. Purchase new equipment where needed.

b. Check present repair and maintenance program. Is it adequate to maintain maximum operations over extended period (several years). Set up and operate program to do this.

c. Without hoarding or purchasing excessive quantities, do you have adequate stock of supplies and spare parts, etc.

d. Fire fighting equipment in adequate quantity and good condition to meet all emergencies.

3. Space

a. If you are considering adding space—now might be good time.

b. Study and put into effect possible ways and means of making more effective use of space available.

c. Establish program to keep additional government agencies advised of space available, type and location, etc. Have complete information available at all times for association headquarters.

d. Give preferential treatment to defense storage needs. By all means, give them regular prompt service.

e. Demonstrate by industry cooperation and efficient service that there is no need for government to construct added space—use convincing facts and figures.

4. Plant Defense and Protection

a. Cooperate with local civil defense authorities, know civil defense program.

b. Adequate plant inspection and guards, other security measures to protect against possible sabotage.

c. Procedure to cope with possible enemy action such as air attacks, incendiary bombs, etc., fire drills, first aide, every man assigned specific duties and station, be sure each understands operation of equipment for which he is responsible.

d. Provision for orderly plant personnel evacuation if necessary.

5. Provision for orderly plant operation in emergency

a. Additional sources for power, auxiliary equipment, etc.

b. Alternate transportation arangements—truck facilities, railroad sidings, etc.

c. Emergency repair, damage control techniques, etc., training.

d. Are all valves, pipes, etc., plainly identified as to purpose, contents, direction of flow, etc. (Strangers might have to be called upon.)

e. Alternate sources of supplies.

f. Alternate building availability.

6. Government Restrictions, Allocations, etc.

a. Working through industry committees, NARW, etc., keep government bureaus and agencies concerned informed as to vital functions of industry and its needs — educate authorities to need for highest possible priorities, etc., as these are assigned.

b. Close contact with local government and military authorities constantly.

7. Industry Coordination

a. Your regional chapter is the proper "funnelling" agency between you and your Washington office. Keep in close contact with chapter officials and act quickly if and when requested by them.

Refrigerated Warehousemen Ready for Emergency

THE refrigerated warehousing industry is preparing to assign 25 percent of its facilities to the government in event of an all out emergency, according to an article in the September 2 issue of the Chicago Journal of Commerce. Because of an increase in facilities since the end of the last war, this will put less pressure on civilian requirements than during that emergency. Both the refrigerated and merchandising segments are being geared to meet other possible demands.

Specific action has been suggested regarding cooperation with the government and industry coordination.

Refrigerated warehouses, the article states, have a total capacity of about 6,000,000,000 pounds, so that 1,500,000,000 pounds of perishables could be held for the government. Currently the industry is operating at about 65 percent of capacity. Ten million cubic feet of modern storage space has been added to refrigerated warehouse facilities in the last five years, largely to meet the needs of the growing frozen food industry. The current total is 413,600,000 cubic feet.

Foundation Director's Office Moves to Colorado

AFTER a study of different possible locations over a period of some two years by the director, the executive committee has authorized that the director's office be moved to Colorado Springs about October 1, where it will be located in the Midland Building on Pikes Peak Avenue. Details regarding the new address and telephone number will be given in next month's bulletin.

The chief reason for the relocation is the desirability of a headquarters closer to the geographic center of the country for the purpose of bringing about greater efficiency and more economic operation in travel time and operating expenses.

Since possible war mobilization of the country might later make such a move more difficult, if not impossible, it was deemed best to undertake it at once. No changes in method of functioning in relation to industry are contemplated, and such changes in operation as will be necessary have already been carefully studied, and for the most part can be handled without undue difficulty or even momentary interruption of the Foundation's customary technical services.

H. C. DIEHL, Director
The Refrigeration
Research Foundation

Government Will Continue Buying Dried Eggs

THE Production and Marketing Administration of the U. S. Department of Agriculture has announced that the purchase of dried eggs will be continued during October, November, and December at levels reflecting to producers a price of at least 25 cents a dozen (27 cents a dozen when delivered by the producer to the plant of the drier.) This will be a continuation of the support program that has been in effect since January, and at the same producer price levels.

Vendors who sell dried eggs to the Department must certify that they have paid producers these prices for eggs in the surplus-producing areas. Offers of dried eggs will be received for October delivery beginning Tuesday, Sept 12. For November and December deliveries the first offering dates will be October 10 and November 14, respectively.

Warehouse Convention Marks Sixty Years Public Service

SIXTY years of outstanding public service will be celebrated by the warehousemen of America when they meet at the Hotel Statler in Boston next February 5-8 for their annual industry convention.

According to the official convention call issued by AWA General President Horace W. Wilson, the coming meeting will have a two-fold purpose: to pay proper tribute to the Association's long history of accomplishment; and to point up the problems and set forth the answers to the many perplexing questions facing the warehousemen today.

"Successful Warehousing in a Wartime Economy" will provide the central theme for all convention discussions. Wartime operation is the livest issue of the day in business. As such, it will dominate the thinking of warehousing industry leaders; men who are charged with the responsibility for helping to protect the kind of business climate necessary to the survival of free, competitive enterprise.

New Research Planned on Milk and Beer

PLANS are under consideration for The Refrigeration Research Foundation assistance to research at Illinois Agricultural Experiment Station on frozen concentrated milk, in cooperation with the American Dairy Association, also on storage of bottled beer in collaboration with Anheuser-Busch. The work would be done under the leadership of Dr. Louis B. Howard, head of the new department of Food Technology in the University of Illinois, Urbana. Dr. Howard was formerly chief of the Bureau of Agricultural and Industrial Chemistry of USDA and previously was in charge of processing research in the Western Regional Laboratory.

New Freezer Storage Plant For Tennessee Crops

CONSTRUCTION at Humboldt (Tenn.) of a large quick-freeze and storage plant is being planned by the Beare Ice & Coal Co. The new plant, expected to be in operation by March 15, 1951, will have a freezing capacity of 200,000 lbs. every 24 hours and 1½-million pounds storage capacity. Fruits, vegetables, meat, and poultry grown by farmers in that West Tennessee area will be processed.

August 31 Cold Storage Holdings

THE expected increase in the utilization of both cooler and freezer public space took place during August. Coolers, by August 31, were 62 percent occupied while freezers were 73 percent occupied, reflecting a 2 point increase in the occupancy of both types of storage space since July 31. Although the utilization of cooler space on August 31 was 7 percentage points below average for this time of year, the present level was 9 points above the occupancy level of a year ago and this is the first time since 1946 that cooler occupancy increased during August. The rise in cooler occupancy was due to increased utilization of space in the New England, Middle Atlantic, East South Central and Pacific regions, with the largest increase reported in the Pacific area.

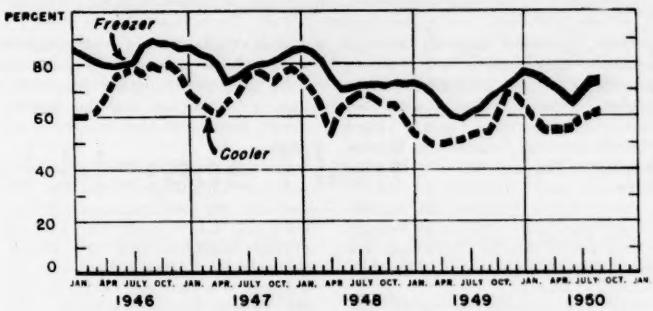
The 73 percent occupancy of freezer space on August 31 compares with an average occupancy of 77 percent and an occupancy level of a year ago of 66 percent. The West North Central and South Atlantic were the only regions which reported a decrease in freezer occupancy. All other regions showed an increase in utilization of freezer space with the exceptions of the East North Central and West South Central areas where freezer occupancy was reported to be at the same respective levels of a month ago. In each of the following cities, both coolers and freezers were reported to be 80 percent occupied or better: Kansas City, Baltimore, Nashville, and San Francisco.

Cooler and freezer-held commodities on August 31 totaled 3.2 billion pounds, indicating a net in-movement of 200 million pounds during the month. This amount equals average holdings for the 5-year period ended August 31, 1949 and exceeds stocks of a year ago by 137 million pounds. Cooler commodities amounted to 1.4 billion pounds while foodstuffs in freezers totalled 1.8 billion pounds. The seasonal in-movement of 170 million pounds of pears accounted for most of the increase in cooler weight during August, while withdrawals of such items as nuts and nutmeats, shell eggs, pork, lard, and rendered pork fat held the net increase of cooler weight to 128 million pounds.

The net in-movement of freezer commodities totalled 72 million pounds during August as frozen fruits and vegetables, butter, poultry, beef, lamb and mutton, veal, and fish moved into warehouses. Commodities moving out of freezer storage were mainly pork and frozen eggs as stocks of these two items decreased 37 and 11 percent during August.

National holdings of apples on August 31 totalled 103 thousand bushels, reflecting a net withdrawal of 12 thousand bushels during August. End of the month stocks were a fourth of the holdings a year ago this date at which time approximately 237 thousand bushels of apples moved into storage during August. Storage holdings of pears, up 3 million bushels since July 31, amounted to 4 million bushels by the end of last month.

Greater than average seasonal increases in holdings of frozen fruits and vegetables brought total stocks on hand to 466 and 362 million pounds, respectively. During August frozen fruits increased 52 million



Occupancy of public cold storage warehouses 1946-1950

TABLE I—COLD STORAGE HOLDINGS IN PUBLIC, PRIVATE AND SEMI-PRIVATE WAREHOUSES, APPLE HOUSES AND MEAT PACKING PLANTS (000 LBS.)

	Aug. 31, 1950	Aug. 1, 1950	Sept. 1, 1949	Five-year Average
Meat and meat products, lbs.	462,422	542,713	451,368	486,007
Lard and rendered pork fat, lbs.	74,578	106,613	68,819	95,619
Frozen poultry, lbs.	106,716	103,367	83,466	135,211
Creamery butter, lbs.	237,212	230,063	153,855	126,265
American cheese, lbs.	284,954	256,395	183,208	174,712
Other cheese, lbs.	22,116	19,291	23,977	26,653
Shell eggs, cases	2,585	3,163	1,426	4,514
Frozen eggs, lbs.	155,374	174,761	146,868	213,799
Apples, bu.	103	115	412	.....
Frozen fruits, lbs.	466,165	414,557	339,588	373,537
Frozen vegetables, lbs.	362,170	283,334	315,788	271,610
Frozen fish, lbs.	154,101	137,307	146,344	135,321

TABLE II—PERCENTAGE OF SPACE OCCUPIED BY PUBLIC COLD STORAGE WAREHOUSES (APPLE HOUSES EXCLUDED)

	Net Piling Space (000 cu. ft.)		Aug. 31, 1950 (%)		July 31, 1950 (%)		Sept. 1, 1949 (%)		5-Year Average (%)	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	2,948	6,980	47	70	46	64	40	74	59	79
Middle Atlantic	37,848	29,459	50	77	44	71	43	67	62	80
East North Central	30,117	28,358	76	69	79	69	56	62	73	74
West North Central	10,526	15,097	80	80	83	85	68	63	78	77
South Atlantic	8,138	6,026	60	68	65	73	50	73	69	80
East South Central	3,295	2,880	83	85	77	80	68	81	80	81
West South Central	7,989	7,588	61	58	61	58	57	49	73	70
Mountain	1,386	1,113	57	81	58	77	60	68	75	82
Pacific	16,638	19,850	56	76	41	67	62	69	68	78
United States	118,885	117,351	62	73	60	71	53	66	69	77

TABLE III—PERCENTAGE OF SPACE OCCUPIED BY PRIVATE AND SEMI-PRIVATE REFRIGERATED WAREHOUSES AND MEAT PACKING PLANTS (APPLE HOUSES EXCLUDED)

	Private and Semi-Private Warehouses						Meat Packing Establishments					
	Net Piling Space (000 Cu. Ft.)		Space Occupied—Per Cent				Net Piling Space (000 Cu. Ft.)		Space Occupied			
			Aug. 31, 1950		Aug. 1, 1950				Aug. 31, 1950		Aug. 1, 1950	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	95	106	46	80	52	74	.....	.....	..	..	..	..
Middle Atlantic	1,472	1,163	57	79	47	85	1,567	282	86	88	86	89
East North Central	3,067	1,609	75	53	76	58	4,737	1,574	83	68	89	72
West North Central	556	2,174	85	83	84	91	14,221	6,418	85	73	85	82
South Atlantic	525	2,439	4	65	11	66	888	218	85	100	86	100
East South Central	.....	.....	..	..	..	..	403	100	85	93	84	92
West South Central	234	73	43	56	42	55	2,525	501	100	100	100	100
Mountain	.....	.....	..	..	100	62	609	391	98	100	93	95
Pacific	4,616	3,769	62	80	49	59	2,835	589	93	90	94	89
United States	10,566	11,334	63	73	59	70	27,785	10,073	87	77	88	83

NOTE: Blank spaces indicate that insufficient returns were received.

pounds compared with an average seasonal increase of 38 million pounds. All frozen fruit items except apples, grapes, Young, Logan and similar berries and orange juice showed seasonal increases in storage holdings. The greatest net change, however, was reported in cherry stocks which increased 35 million pounds during August and by the end of the month was at a new high for this time of year with 78 million pounds in storage.

The net increase of 79 million pounds in frozen vegetable stocks was three-fifths greater than average but was about equal to the change last year. Total stocks, however, exceeded the stocks of a year ago by 46 million pounds and were more than a third greater than average. Lima and snap beans, Brussels sprouts, and spinach were at record levels for this time of year, while other frozen vegetable items were at near record levels. Total over-all stocks were 36 million pounds greater than the previous August 31 record of 1947.

Creamery butter in storage on August 31 was at an all-time record high for any month since 1916. Stocks in the nation's refrigerated storages totaled 237 million pounds. The previous record high, 232 million pounds, was set on October 1, 1943. Approximately 7 million pounds of creamery butter moved into storage during August which compares with 17 million pounds of a year ago and an average August increase of 15 million pounds. Current butter holdings were almost 90 percent greater than average for this time of year and more than 50 percent greater than stocks of a year ago.

American cheese in storage likewise broke all previous storage records. August 31 stocks, up 29 million pounds since July 31, amounted to 285 million pounds. This was the greatest amount on hand for any month since storage reports were first initiated in 1916. Increases in other varieties of cheese of 4 million pounds brought total stocks, all classes of cheese, to a record high of 314 million pounds. These stocks were 50 percent greater than holdings of a year ago and the average stocks for the 5-year period ended 1949.

Storage stocks of shell eggs were down to 2.6 million cases. On August 31, the total national holdings were only a little more than half the average supply for this time of year but were four-fifths greater than the holdings of a year ago. With 155 and 107 million pounds of frozen and dried eggs, respectively, in storage on August 31, the case equivalent of eggs in storage amounted to 17 million standard cases.

A small seasonal increase in frozen poultry holdings during August brought stocks on hand to 107 million pounds by the end of the month. The 3 million pound net increase was only about a fourth of the average increase for this time of year. Significant increases in storage holdings of fowls and ducks, about 4 million pounds each, were reported during August, while turkey stocks which were reduced by 8 million pounds declined to 39 million pounds by the end of August.

An over-all reduction of 80 million pounds in the national holdings of meats and meat products was reported during August as seasonal decreases in pork stocks more than countered net increases in storage holdings of beef and other meat items.

Pork, all classes, amounted to 299 million pounds or about 95 million pounds less than the stocks on hand a month earlier. This net reduction was about average, but total holdings, however, were some 27 million pounds greater than average. Frozen pork in storage was only about average as almost 70 million pounds moved out of storage.

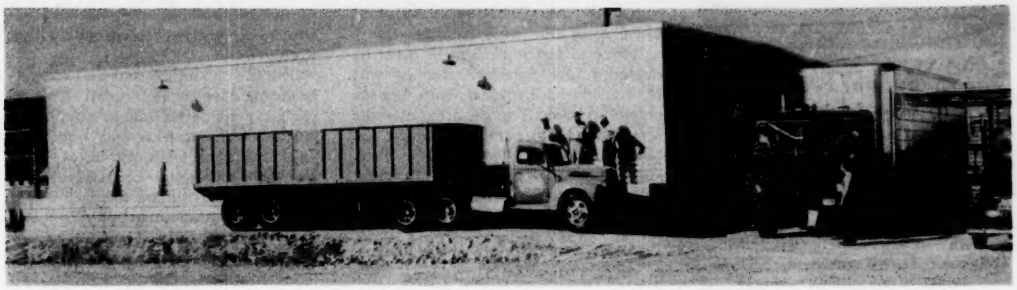
Beef storage holdings were up 11 million pounds from a month earlier and by August 31 totalled 72 million pounds. Although total holdings were below average, they were greater than last year's holdings. Other meats, for example, sausage and sausage room products totalled 11 million pounds; lamb and mutton, 6 million pounds; veal, 7 million pounds; edible offal, 40 million pounds.

The aforementioned commodities were all below their respective 5-year average holdings for this time of year. From an over-all standpoint, total stocks of meats and meat products in storage which was 462 million pounds August 31, exceeded last years' stocks but were below the holdings for the 5-year period ended 1949.

Storage Outlook

Utilization of cooler space in public general warehouses during September is largely dependent upon the rate fresh fruits move into storage. From past records, there appears to be a readjustment period during September which is reflected by a drop in cooler occupancy, but is soon followed by a sharp increase as the rate of fruit storage accelerates. For the 5-year period ended 1949, at the end of September occupancy use was 1 point below the previous month's level although last year this did not hold true. But in 1949, apple and pear prospects were better than this year, and by August 31 almost 6 million bushels were in storage compared to 4 million this year. However, the rate with which dried eggs and cheese have been moving into cooler storage and the sizeable amounts on hand may alter the possibility of an occupancy drop during September.

Freezer storage occupancy continued to increase as frozen fruits and vegetables moved into storage in above average amounts. This trend is likely to continue since freezer-stored commodities generally reach their peak by the end of the year. From previous performance freezer occupancy by the end of September should be up 1 point from a month earlier.



Ice Goes In, Fruit Comes Out—The large truck standing in front of the cold storage plant of Kennedy-Stewart Co. in Reedley is delivering ice from the Reedley Ice Co. to the new cooling plant. Standing beside the truck are Bill Yeager, driver of the ice truck, George Frantz, house man for Kennedy-Stewart, and Les Adkins, manager of the Reedley Ice Co. Beside the building is a truck from Salt Lake City loading peaches for delivery to Grand Island, Nebraska. Driver Don Oliver stands in front of the truck.

Ice Cools Cold Storage Plant

ANDERS J. HAUGE

A NEW ice-cooled cold storage plant is now in service at Reedley, Calif. It is being operated by Roy Kennedy and Emory Stewart to pack fruit and grapes for the Nash De Camp Co. The plant is giving perfect service and the owners are specially pleased with its low overall cost of operation.

At the time this article was written they were looking forward to the fall, winter and early spring. They will put 30 carloads of Emperor grapes into their storage plant this fall and expect the fruit to be held three or four months in good condition for the late grape market. They will also rent storage space for another 30 carloads of Emperors.

The Kennedy-Stewart plant is the second one in this section to be cooled with ice, the first one built last year at the Nash DeCamp house in Exeter. The two are constructed on the same plan except that there have been some minor improvements in the Reedley plant over the one at Exeter.

Ice for Fruit Cooling

The rapidly expanding cold storage industry in California has so far been equipped mainly with mechanical refrigeration, but the Reedley packers see a swing to ice for fruit cooling and storage plants. The argument between the ice people and the mechanical refrigeration advocates will now be extended to the new field of cold storage plants.

The new building is 70 feet by 70 feet, built over a concrete foundation and floor with walls of wood frame construction. Redwood bark insulation is used in the walls and ceiling and the exterior wall covering is asbestos siding. Under the concrete floor the insulation is Zonolite, and around the ice bunkers foam glass is used.

There are three cold rooms with a total capacity of 27,500 fruit boxes, or 25 carloads of fruit. The corridor connecting the rooms also can be cooled, giving an additional five-carload capacity.

The ice bunkers are built into the floor and are easily loaded from trucks which drive up along the side of the building. The bunkers for each room hold one hundred 300-pound cakes of ice for a grand total capacity of 45 tons. Fans under the ceiling blow the air over the fruit to circulate down and back through

(Continued on page 74)

In a Cold Room—Boxes of peaches are being stacked in a cold room of the new storage plant under the supervision of George Frantz. Circulating fans can be seen at the top of the wall, along the floor underneath can be seen the wall openings through which air goes to circulate over the ice in the bunkers.

Into the Bunkers—A crew from the Reedley Ice Co. loads ice into the floor height bunkers at the new cold storage plant of Kennedy-Stewart Co., Reedley. Emmett Yeager, left, truck driver, pushes the cakes out to Sam Hagopian, foreman, at right. George Frantz, house man for Kennedy-Stewart, assists in the background. (Photos by John Nurmi Reedley.)

The Manpower Problem — How to Effect Deferment

AS INCREASED military requirements result in the calling up of additional reserves and the drafting of more men through Selective Service, many industries will begin to feel the pinch. Refrigerated warehousing is no exception.

To help refrigerated warehousemen in their planning, the National Association of Refrigerated Warehouses has issued a bulletin summarizing briefly deferment policies currently in effect as announced by the Personnel Policy Board of the Department of Defense.

1—Reservists will be considered for deferment only if they are "engaged in a critical occupation necessary to a highly essential activity." Consideration will, however, be given to hardship cases.

2—Deferment, if granted, will be subject to review every six months.

Cold storage has been included in the Department of Commerce's list of essential activities. The only occupations on the Labor Department's list of critical occupations which might affect cold storage employees are "maintenance mechanic" and "mechanical engineer." Included under mechanical engineers are those engaged in supervising the maintenance of refrigeration and air conditioning equipment.

You, of course, have a right to seek deferments, but be sure they are reasonable.

Requests for deferment of reserve personnel should be addressed as follows, but no request should be made until active duty orders are actually received:

ARMY—Through unit commander or unit instructor to Commanding General of the Army Area in which he resides.

NAVY—Officers to Chief, bureau of naval personnel. Non-aviators via naval district commandant; aviation officers via Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Illinois. Enlisted personnel (non-aviation) to Naval District Commandant; aviation enlisted personnel to Chief of Naval Air Reserve Training, Naval Air Station, Glenview, Illinois.

MARINE CORPS—Through chain of command, starting with local inspector instructor.

AIR FORCE—To Headquarters of the numbered Air Force for the area in which reservist resides.

NATIONAL GUARD—To Adjutant General of the State concerned.

Requests for deferment of men inducted under Selective Service will be considered by local draft boards on an individual basis. Requests for occupational deferment must be backed up with facts and a clear statement as to why the individual concerned is essential. This should accompany the employee's Classification Questionnaire and must show that he is (1) engaged in an activity essential to the national health, safety or interest; (2) he cannot be replaced because of a shortage of persons with his skills or qualifications; (3) his loss would cause a material loss of effectiveness in your operations.

Class II-A deferments (because of civilian occupation) are for a period of not more than one year and are subject to review at the end of that time.

Unless you can present an unusually strong case for deferment it would probably be better not to attempt to get a deferment. You may only hurt your relations with the local draft board. Good public relations with these boards is important.

Now is a good time to review and study your personnel set-up to determine, (1) which employees are liable to call, (2) what services you can curtail or eliminate if necessary, (3) what effect increased overtime will have on your payroll and operations, (4) what best sources of replacement employees are, (5) what training programs are necessary to qualify present employees for more responsible positions.

Cold Storage Stocks of Frozen Fruits and Vegetables

THE net into storage movement of 23 million pounds of frozen raspberries and 10 million pounds of frozen strawberries during July brought holdings to 35 and 116 million pounds respectively by July 31. Information on the package size distribution of these stocks indicated that retail packages moved into storage faster than stocks packaged for institutional use. From reports covering almost four-fifths of the frozen raspberries and strawberries in storage, warehousemen indicated that 18 percent of the raspberries and 38 percent of the strawberries were in retail units. This compares with 16 and 32 percent reported a month earlier. Frozen peaches, on the other hand, were moving from storage during July and by July 31 approximately 6 million pounds were on hand, of which two-thirds were detailed as to package size. These reports showed that the net out of storage movement occurred primarily in the larger sized packages since the ratio of this package size to total stocks decreased from 65 to 58 percent.

COLD STORAGE STOCKS OF FROZEN FRUITS AND VEGETABLES IN PACKAGES OF ONE POUND OR LESS IN STORAGE JULY 31 AND JULY 1, 1950 (000 LBS.)

	July 31, 1950 lbs.	pct.	July 1,1950 lbs.	pct.
Peaches	1,605	42	1,769	35
Raspberries	4,954	18	1,478	16
Strawberries	33,517	38	25,162	32
Asparagus	5,511	69	5,759	70
Beans, lima	6,005	41	7,640	43
Beans, snap	7,713	58	6,191	67
Corn, sweet	4,580	55	5,542	51
Peas, green	38,911	51	17,390	49
Spinach	14,104	78	15,753	82

The distribution by package size of frozen asparagus in storage on July 31 was relatively unchanged from July 1. Approximately 69 percent of the asparagus in storage were reported to be in retail containers as compared with 70 percent last month. Lima beans in retail packages comprised 41 percent of the total in storage classified as to container size as compared with 43 percent a month earlier.

Consumer-sized containers of frozen snap beans made up only three-fifths of the stocks reported by package size compared with two-thirds on July 1. Since total holdings of lima beans increased 5 million pounds during July and percentage-wise retail packages decreased, it appears that the into storage movement centered largely upon the institutional container. Seasonal withdrawals of frozen corn and spinach brought stocks down to 13 and 28 million pounds respectively by July 31.

A little more than half of the frozen corn and almost four-fifths of the spinach were in retail sizes by the end of the month. For the former vegetable item this was an increase of 4 percentage points over the percentage of a month earlier, but for the latter item the ratio of retail packages decreased 4 points to 78 percent. The net into storage movement of 58 million pounds of frozen peas during July appeared to be almost evenly divided between retail and institutional sized packages, with a slight emphasis on the smaller sized container.

This package size comprised 51 percent of the total compared with 49 percent on July 1.

Food Associations Name Defense Committee

A SPECIAL Defense Liaison Committee has been appointed from Washington's national food trade associations represented in The Food Group. Watson Rogers, president of the National Food Brokers Association, has been named as chairman of the special committee, which will work with government agencies on specific problems of manpower and selective service, as well as developments or problems arising from the Defense Production Act of 1950.

Appointment of the special committee was announced by William Dalton, executive vice-president of the National Association of Refrigerated Warehouses, who is president of the group. He stated that the appointment of a special committee was requested by a unanimous resolution of the membership. It was felt that immediately after the signing of the Defense Production Act by President Truman, government agencies will be busy setting up organizations and plans for the administering of the Act. At this time, while such operational plans are still in the formulative stages the food industry representatives can work with the agencies and give them the benefits of industry experience and advice.

It will be the purpose of the Committee to consider problems on an industry-wide basis and not those of individual groups. One of its first activities will be to take up with appropriate officials the matter of inadequate criteria of standards for the guidance of local draft boards in the deferment of persons in essential industries or in critical occupations, other than reservists and members of the National Guard.

The Committee will be divided into two groups, one to work on manpower problems, and the other on controls.

The Food Group is an organization of the representatives of most of the national food and related industry associations located in the nation's capital. It includes representatives of manufacturing, processing, warehousing, and distribution organizations in the food industry.

The Defense Liaison Committee consists of the following: Watson Rogers, Committee Chairman, National Food Brokers Assn.; M. H. Brightman, Dairy Industry Committee; Benjamin F. Castle, Milk Industry Foundation; Wm. H. Doherty, Hawaiian Sugar Planters Assn.; Wallace Flint, National Assn. of Food Chains; C. B. Heinemann, National Independent Meat Packers; Wm. T. Jobe, National Assn. of Ice Industries; Wm. Quinlan, Associated Retail Bakers of America; C. W. Kitchen, United Fresh Fruit & Vegetable Assn.; Harold O. Smith, Jr., U. S. Wholesale Grocers' Assn.; Joe R. Cavanagh, Ex-Officio (Vice Chairman, The Food Group); Wm. Dalton Ex-Officio (Chairman, Food Group) National Assn. of Refrigerated Warehouses; Jos. B. Danzansky, Mayonnaise & Salad Dressing Mftrs. Assn.

Refrigerated Transportation Costs Studied

RESEARCH on storage and transportation of fruits and vegetables, as carried on by the Plant Industry Section of the U. S. Department of Agriculture, has been notable for discoveries resulting in economies in the use of various materials and equipment. The studies of these scientists (including engineers, pathologists and horticulturists) during the past year or so have brought out what might be called protective savings for shippers.

One case has to do with the gases given off by many fruits in storage or transit that hasten ripening. Devices had been put on the market to free the air of these gaseous by-products. But tests by the Department scientists showed that, at least with apples and pears, the purifier did little more than remove odors.

When it came to shipping flowers by air, a widespread belief developed that pressurized cabins were the thing to keep cut blooms from going bad (that is, such defects as split petals, blasted buds) at high altitudes. But tests in cooperation with the Southern California Floral Association and the Lockheed Aircraft Corporation proved to the investigators that the chief deterioration in high flights came from drying, and such loss, they found, could be largely prevented by using ordinary water ice in the present type of package.

The investigators recently have tried out heater-refrigerator cars with built-in heating systems, but temperatures were no better than when fans and portable charcoal heaters were used according to the present common practice.

These discoveries are right in line with some of the earlier ones made by this research group. Years ago they found it possible to keep cars cool with much less ice, at a saving not only of ice but in the cost of transporting excess ice across the country. Then, not quite so long ago, they found that shippers of California oranges could save on refrigeration in transit by opening the car ventilators to the cold air as the trains pulled into the mountains at the start of the trip East.

What the newer discoveries mean is indicated by the results of these two earlier ones. Cutting down on the ice used in refrigerator cars in general, resulted in the Interstate Commerce Commission reducing refrigeration rates on such shipments by 22 per cent. By cooling the orange cars with mountain air according to new regulations that resulted from tests, the growers are saved about $40 on each car.

Warehousemen Hold Joint Meeting in New York

A JOINT meeting of the New York State Association of Refrigerated Warehouses and the North Atlantic Chapter of the National Association of Refrigerated Warehouses was held at the Hotel Sheraton, Rochester, N. Y., September 12-14. This meeting, which took the place of the usual summer meeting of the New York State Association, was well attended by members of both organizations.

The meeting opened Tuesday evening with a dinner, followed by a general business session and informal discussion.

Wednesday morning the ladies were taken on a tour of the City and the Eastman mansion, returning to the hotel in time for luncheon.

The program on Wednesday consisted of the following.

L. R. St. Onge of V. C. Patterson & Associates, York, Pa., gave a technical presentation on a new type compressor designed for cold storage operation.

A panel on social insurance, unemployment and disability benefits was conducted by M. F. Hilfinger, president Associated Industries of New York and Harry Waltner of the Standard Oil Company of New Jersey.

A color film on the proper method of harvesting and storing of apples was presented by Merchants Cold storage & Warehouse Co., Providence, R. I.

The session was closed with a general discussion of legislative problems affecting the cold storage industry; government controls in the emergency; financing wholesale markets by the government; fisheries stabilization corporation; warehouse receipts; social security program under new bill—health insurance and fair trade practice rules.

The Freezing and Storage of Oysters

A BULLETIN has been issued by the Refrigeration Research Foundation on the freezing and storage of oysters. Frozen oysters, it states, are potentially important. Last year only about 100,000 pounds were in frozen storage on May 1, whereas total annual production of oyster meats in the United States is about 75,000,000 lbs. Since freezing changes quality of oyster meats only slightly, whereas canning results in pronounced changes in flavor, an increased volume of frozen oysters for consumption during summer months seems logical. The Oyster Institute of North America, the oyster industry in general, and fisheries technologists are all doing what they can to spur this development along. Oysters contain only small amounts of fat and carbohydrate (that is, few calories) and are rich in proteins, minerals and vitamin content. Thus they are an excellent food for both summer and winter.

As an aid to warehousemen in recognizing good quality and possible storage hazards, the following information is presented. Generally speaking, freshness, good packaging, and sanitation in the packing plant are outstanding factors that packers of high-quality frozen oysters consider. Steps in processing and handling are in the main as follows:

1—Washing—By passage of freshly opened meats over skimmer or riffle board, removes sand, bits of shell, etc. Oysters in shell are sprayed beforehand to remove sand and debris.

2—Inspection—To remove discolored or otherwise objectionable meats.

3—Washing in stainless steel or monel metal tanks with agitation (usually with compressed air) in fresh or salt water. Yield will be increased if they are "blown" in fresh water, but salt water preserves flavor and offers better control of leakage on thawing. Best quality is obtained if salt content is slightly above that of water in which the oysters were grown. Oysters are drained before they are packaged.

4—Packaging. The package must be depended upon to serve several purposes: (a) It must protect against loss of moisture vapor and must be tightly sealed. Desiccated or "freezer burned" oysters are definitely a result of package failure. (b) The package must be perfectly sanitary. All paperboard used should be waxed. Inner-liners or bags must be sealable and of good quality. All air must be excluded. (c) The package must prevent leakage and discoloration of outward surface, both before freezing and after thawing. (d) It must prevent free passage of air from the outside. (e) It must be reasonably strong to avoid mechanical damage. Various packages can be used, such as cartons with liners, glazed wrapped "bricks", or metallic or partly metallic containers. Expansion during freezing is about 7 percent.

5—Use of a packing medium, such as strained liquor from shucked oysters, fills voids and excludes air, but this matter may be controversial from the legal point of view.

6—Use of ascorbic acid (vitamin C) to control oxidation is probably an advantage and should be investigated further.

7—Freezing—Fast freezing as at -30 F or lower offers no special advantage over slower freezing from a quality standpoint. Reasonably fast freezing is recommended.

8—Storage should be at 0 F or lower. Good - quality, well - packaged frozen oysters can be expected to hold high quality for eight months or longer at 0 F or lower. Do not allow temperature to reach plus 10 F or above.

An indicator of freshness of oysters is the pH measurement. Values for pH of the liquor of fresh oysters range well above six and will decline with development of spoilage; that is, the medium becomes slightly more acid. Research on this relationship is being conducted by the Fish and Wildlife Service.

Summary

1—Oysters of original high quality, well packaged and frozen without delay, will retain quality in a satisfactory manner for eight months to a year at 0 F or below, consistently maintained.

2—Lower quality may be due to many factors, such as failure to use live, fresh oysters; lack of adequate sanitation and cleanliness in packing; opening with heat; failure to exclude air in packaging or to use adequately protective packages; delay in freezing or other factors. Evidences of decline in quality are development of stale or other off flavor, loss of natural color and texture, loss of moisture, etc. The brief description of processing steps below indicates standards maintained by packers of high-quality frozen oysters.

3—Frozen oysters, like other frozen seafoods, offer excellent opportunity for expansion of operations, provided good technical standards prevail throughout packing, shipment, storage and distribution.

Arizona Plant to Process Frozen Citrus Juice

A MILLION dollar expansion of production facilities for processing frozen citrus juice has been announced by H. C. Davidson, president of the Arizona Frozen Foods Corp., Phoenix, Ariz. The company has acquired for $250,000 a five-acre tract adjoining its present plant at 2100 West McDowell Road as the site for the expansion. Three concrete freezing houses are to be built which will contain a total of 290,000 square feet.

Davidson disclosed that it is planned to start construction on the plant addition by January 1, 1951, if the war situation makes building material available at that time. Expansion was necessitated, he declared, by a 500 percent increase in the company's business volume during the past decade. The three new freezing units will cost $225,000 each.

The plant is to be built in answer to a vital need of Arizona for such facilities. At present, facilities for freezing citrus juice are non-existant in the state which last year shipped hundreds of tons of frost-damaged citrus to Redlands, Calif., for processing.

Modern Marketing Facilities For Poultry and Eggs

BETTER and more modern facilities for marketing poultry and eggs are needed in most cities, and they would reduce costs of marketing such products. These findings are based on a study of wholesale poultry and egg marketing in thirty cities, the Production and Marketing Administration of the U. S. Department of Agriculture has reported.

The report describes the facilities for marketing poultry and eggs in the principal poultry marketing centers of the Nation. It shows that many poultry and egg dealers occupy a variety of buildings, most of which were built for other uses. Many wholesale stores which need processing rooms are without them, and egg breaking and candling rooms in many processing plants are inadequate and improperly built for the purpose. The report points out that these defects contribute to higher costs for marketing poultry and eggs by causing unnecessary breakage, deterioration, cartage, porterage, and lost time.

FrozenFoods
*Reg. U. S. Pat. Off.
PREPARATION PACKAGING FREEZING STORAGE DISTRIBUTION DESIGN CONSTRUCTION EQUIPMENT

New High for Frozen Fruits—Juices

Spectacular growth of frozen orange concentrate shown in report issued by agricultural department. 1950 pack expected to consume 20 percent of entire orange crop.

TOTAL production of frozen fruits and fruit juices in the United States in 1950 is expected to set a new record, considerably larger than the previous record of 525 million pounds in 1946, says a report issued by the Bureau of Agricultural Economics of the United States Department of Agriculture. In 1949 the frozen fruit pack was 483 million pounds and per capita consumption was 3.5 pounds, basis weight of the frozen product.

Some increase is expected in the 1950 packs of strawberries and sour cherries, the two leading fruits packed in 1949. But the largest increase will be in frozen concentrated citrus juices, of which the 1949 output of orange juice was considerably larger than that of strawberries and substantially larger than that of cherries. In Florida the 1950 pack of frozen orange concentrate already had more than doubled by mid June. In California, the new pack from Valencia oranges was just getting under way.

Started on a small scale in 1945-46, production of frozen concentrated orange juice has since increased rapidly to become a major outlet for oranges. The early success achieved with oranges has led to the more recent manufacture of frozen concentrated grapefruit juice, blended orange and grapefruit juice, and even lemonade. Among non citrus juices, frozen concentrated grape juice is also being manufactured commercially. Experiments are being carried on with other fruit juices.

Begun in 1945-46

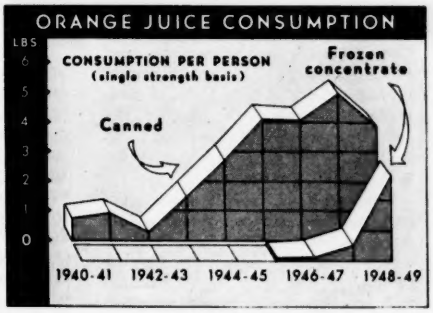
Commercial manufacture of frozen concentrated orange juice began in Florida in 1945-46 when about 226,000 gallons of 4 to 1 concentrate were produced. Production in this State more than doubled in 1946-47. The orange concentrate made in these two seasons was distributed largely through the hotel, restaurant, and soda fountain trades, where response was so favorable as to point to its widespread use by household consumers.

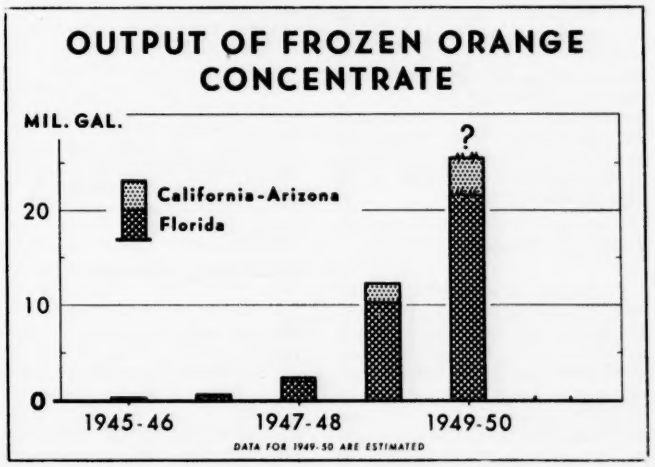
The amazing growth in output of frozen citrus concentrate over the past five years stands out as a record that can be matched by few other industries. Output during the fourth year of operation was more than 50 times that of the first year, and output during the fifth year probably will be about 100 times.

In 1945-46, the first year of manufacture, frozen orange concentrate

Right: Chart issued by U. S. Department of Agriculture showing growth of orange juice consumption 1940-49.

Below: Chart showing increased output of frozen orange juice concentrate since 1945. Production has mounted rapidly. This outlet took about 10 percent of the 1948-49 orange crop and is expected to take over 20 percent of the 1949-50 crop. Production in Florida in 1948-49 was more than five times that in California and Arizona.





provided an outlet for about one-fifth of 1 percent of the orange crop of the United States. In 1948-49, the fourth year, it took about 10 million boxes of oranges or 10 percent of the crop. It is expected to take about 20 percent of the 1949-50 orange crop and about 5 percent of the grapefruit crop.

FROZEN CONCENTRATED CITRUS JUICES: PRODUCTION IN FLORIDA AND CALIFORNIA-ARIZONA, 1945-46 TO 1949-50 (Gallons)

Season	Florida	California-Arizona	Total
	Orange Juice		
1945-46	225,684	0	225,684
1946-47	559,309	0	559,309
1947-48	1,935,863	437,376	2,373,244
1948-49	10,232,831	1,963,035	12,195,866
1949-50[1]	21,419,802		
	Grapefruit Juice		
1947-48	402	0	402
1948-49	116,123	0	116,123
1949-50[1]	1,582,274		
	Orange-Grapefruit Blend		
1948-49	111,836	0	111,836
1949-50[1]	1,290,085		

[1] Season up to and including June 17, 1950. Florida pack only.

With the 1949-50 orange season in Florida nearly completed in mid-June, frozen orange concentrate took about 31 percent of the entire Florida orange crop. The frozen orange concentrate manufactured during the 1947-48 and 1948-49 seasons was packed mainly in 6-ounce cans for sale by retail stores.

Production of frozen citrus concentrate was extended to grapefruit juice in 1947-48, when 402 gallons were made in Florida. In 1948-49 production was over 116,000 gallons, and in 1949-50 it again increased sharply to about 1,582,000 gallons. In 1948-49 nearly 112,000 gallons of frozen concentrated blended orange and grapefruit juice were made in Florida, and in 1949-50 output neared to about 1,290,000 gallons. With increased plant capacity, production in Florida reached a peak weekly output of more than 1.3 million gallons of frozen orange concentrate in the 1949-50 season.

California Production

Production of orange concentrate in California did not get started until 1947-48, and the combined output of this State and Florida more than quadrupled that of Florida in 1946-47. Output again expanded greatly in 1948-49, amounting to more than five times that of the preceding season. Of the 12.2 million gallons produced in 1948-49, over 10 million were made in Florida and nearly 2 million in California and Arizona. Production in California and Arizona, drawing from the Valencia crop, will run through the summer and also may double the preceding year's output. Additional plants will be available in California this summer to process Valencia oranges, and the first plant in Texas will be ready next winter to handle Texas citrus fruits.

Distribution

With the growth in output and popularity of the frozen citrus concentrate, distribution of the product has become more widespread. A nationwide survey conducted in 1949 by Industrial Surveys Co., Inc., for the United States Department of Agriculture revealed that frozen concentrated orange juice was being handled by a sharply increasing percentage of retail stores.

Of the stores surveyed about 17 percent carried the product in April, 24 percent in August, and 31 percent in November, 1949. In contrast, 84 percent of the stores carried canned orange juice in November 1949. This survey showed that the frozen orange concentrate was least available in stores doing a relatively small volume of business, in stores located in small cities and towns, and in stores in the South. But even among such stores, the percentage carrying the frozen orange concentrate doubled during 1949.

Citrus Juice Processing

Frozen concentrated citrus juice is manufactured by a process developed by the Florida Citrus Commission and the United States Department of Agriculture. In making the orange product, for example, fresh orange juice is passed through a low temperature, high vacuum evaporating system, which removes enough water to reduce the juice to about one-sixth its original volume. This product is then mixed with about half as much fresh orange juice, giving a 4 to 1 concentrate (42 degree Brix).

The fresh juice tends to restore the original fresh flavor. The concentrate is then chilled to a slush, sealed in cans, and frozen to zero or lower. It is stored at zero until sold. The exact process of manufacture varies with the sugar-acid ratio, percentage solids in the juice, and other factors. In preparing the concentrate for the table, it is mixed with three times as much cold water, which brings it back to single strength. In this form, it cannot easily be distinguished, if at all, from fresh orange juice.

Court Voids Restricted Sale of Frozen Meats

EFFORTS by Labor Union interests to halt the sale of frozen poultry, meats and fish in self-service cabinets in markets in Los Angeles on Sundays and holidays and after 6:00 p.m. on week days were rejected in a decision handed down August 27 in Division 3, California District Court of Appeal, sitting in Los Angeles.

The tribunal in a decision written by Presiding Justice Clement L. Shinn and concurred in by Associate Justices Parker Wood and Paul Vallee, upheld the contention of four Southern California meat and provision concerns that an agreement between union organizations and markets which would have had the effect of limiting the sales hours of frozen products would be in violation of the California Business and Professions Code.

Parties to the action were Kold Kist, Inc.; Arbo Frozen Meat Products, Inc.; Vernon Meat & Provision Co.; and Feller Meat Products, on the one hand, and Locals 421 and 587 of the Amalgamated Meat Cutters and Butchers Workmen of North America, on the other.

The case reached the Appellate Court on an appeal by the union locals from orders issued by Superior Judge Clarence M. Hanson. One of the orders granted a preliminary injunction restraining the unions and stores from signing an agreement under which frozen meats, poultry and fish would be handled only by union members. The other order overruled a demurrer of the unions.

The Appellate Court dismissed the appeal from the order overruling the demurrers and affirmed the order granting the preliminary injunction.

Frozen Food Locker Associations Hold Joint Annual Convention

A JOINT annual convention of the Frozen Food Locker Institute and the National Frozen Food Locker Association was held at the Palmer House, Chicago, Ill., September 10-13, 1950. Three general sessions and a number of clinics were held covering all phases of locker operation and management.

Associations Merge

After operating as separate organizations for about two years, with separate annual conventions and exhibits in 1949, the two associations took preliminary steps toward joining forces again under the name of the Frozen Food Locker Institute. At an open general meeting held Tuesday, a resolution to that effect was presented by the committee representing the two associations, and after a brief discussion, was adopted.

The resolution provided that the frozen food locker industry be reorganized under the name of the National Frozen Food Locker Institute. The board of directors of both associations was empowered and instructed to meet for the purpose of welding the two organizations by adopting new by-laws, electing a new board of directors, electing new officers, employing an executive secretary, and doing whatever was deemed necessary to effect a strong and effective organization.

In presenting this resolution, Robert Madeira, chairman of the joint committee, expressed appreciation for the work and help contributed by members of the committee in their efforts to iron out differences between the two associations.

Locker Institute Sessions

At the opening general session of the Frozen Food Locker Institute held Tuesday morning, reports of officers were given, along with a dramatic skit on the future of locker plant's role and an address on merchandising.

Albert Todoroff, acting as executive secretary, reported on the work accomplished by the Institute during the past year. Under the agreement with the National Frozen Food Locker Association, the Institute had ceased to solicit operator members but many had joined of their own accord. Now, he said, the Institute was free from this agreement and planned to solicit locker members.

He then outlined and illustrated with charts, a new advertising and merchandising program prepared for locker members. This includes a bulletin service, booklets prepared for customers, roadside signs, newspaper mats, monthly publication for distribution to customers, color sound films with a promotional kit of material, employment service to provide meat cutters and other help wanted, and a series of short movie "trailers" for advertising in local theaters.

Opening this session, S. A. Scobel, president, complimented the joint convention committee representing the Institute and the Association for their work in arranging for the convention. He also announced that plans were under way for merging the two associations, details of which, he said, would be announced later.

A dramatic skit "The Future of the Locker Plant's Role" was presented at this session giving a demonstration of merchandising supplies. The first part of this skit showed how it should not be done and the second half showed how it should be done.

Walter F. Dunlap, Advertising and Merchandising Counsellor of Milwaukee, gave an interesting talk on merchandising in the modern world. Up until about two years ago, he said, meat shortages and other factors created a condition in which lockers were greatly in demand, but since then conditions have changed and now it takes active merchandising to sell them and keep them sold. The main appeal of lockers is not to save money but to provide better food. They do this, and it is the people who appreciate good food who make the best locker customers. It is up to the locker operators to keep their customers and prospective customers informed regarding this service, he said.

New Officers and Directors Frozen Food Locker Institute

President, Roy J. Burns, Carroll, Iowa.

Vice-presidents, A. L. Sprague, Jackson Center, Ohio; E. E. Jackson, Kellogg, Iowa; W. S. Winstead, Madisonville, Ky.

Board of Directors: M. J. Nehring, Paynesville, Minn.; D. Archie Limon, London, Ont., Canada; L. J. McKahan, Greensburg, Ind.; Perry Philips, Columbia, Mo.; C. W. Free, St. Louis, Mo.; E. C. Wyckoff, Ithaca, N. Y.; Robert Madeira, Elizabethton, Pa.

National Frozen Food Locker Association Session

The opening general session of the convention was held Monday morning with a joint session of both associations. W. H. Hazebroock, president of the National Frozen Food Locker Association, presided. Reports on the work of the association during the past year were presented by the president and executive secretary.

A preliminary report of the joint committee on reorganization stated that an agreement had been reached between representatives of the two associations, agreeing on all major issues.

An interesting feature of this session was presentation of a paper by L. B. Mann of the U. S. Department of Agriculture on "The Inside Story of 6737 Locker Plants." Mr. Mann summarized a survey of the locker industry made by the Department in 1950. This survey was based on over 6700 replies received from locker plant operators representing nearly 60 percent of total plants in the country. It shows that over 70 percent of all locker plants are located in towns of 5000 or less population with 40 percent in towns under 1000. Only 19 percent are in towns of over 10,000 population. Approximately 40 percent of all plants are operated independently of other business, an increase from 29 percent reported in the 1946 survey. The balance of plants were operated largely in connection with ice and cold storage and dairy plants. This report is further summarized on another page of this issue.

Final Session

At the general session held Wednesday morning, the joint association committee reported election of new officers for the coming year and announced that further details of merger of the two associations would be reported later.

Frozen Foods

At this session an interesting turkey cutting demonstration was presented. A medium sized turkey was cut into frying and roasting pieces and a point was made that merchandising turkey by the piece offered a big opportunity for locker plants, particularly those having a retail meat department.

Road to Prosperity

Talking on "The Road to Prosperity" T. L. Haake, Economics Consultant, pointed out that successful business is built on supplying people with products they want, and frequently includes offering people products they do not know about. The main aim of the locker industry, he said, was inducing people to buy better foods and this would mean that they would eat more. In general he said the road to prosperity would entail not easy hours with less work but a full day's work in return for wages and salary earned.

He criticized political management and control of business by government and said this was the exact reverse of the way to achieve prosperity. Currently, he said, the wave of wage increases has resulted in higher prices and the workers, with their increased wages, are no better off. Inflation, he said, must be avoided by paying the costs of the current war as we go rather than increasing the National debt.

Discussion Clinics

Throughout the convention a number of clinics were held on subjects of particular interest to the locker industry. These clinics covered the following: Slaughter house operation and design; group buying of fruits and vegetables; locker plant operating costs and income; processing room arrangement—cutting and wrapping demonstration; home units and locker plants; advertising—direct mail, newspaper, radio; ham and bacon curing and smoking; poultry processing—packaging and merchandising; locker plant operating costs and income; merchandising containers, packaging; plant maintenance and service—refrigeration, insulation, defrosting water towers, etc.; buying and selling—fruits and vegetables, fish and seafood; fruit and vegetable processing, packaging kitchens; how to make money from slaughtering; advertising; turkey curing and smoking; sausage making; home units and their problems.

At the home freezer clinic, leading locker operators recommended that the locker plant sell home freezers and, at the same time, push their locker service among home freezer owners. One operator told about a very successful display made at his local fair at which both home freezers and lockers were displayed.

Another locker operator from Portland, Ore., sketched briefly his plan of home freezer rental and delivery. This plan ties in directly with sale of commercial frozen foods to those who rent or buy home freezers. The rental plan, he said, is especially applicable to small and medium sized cities. For medium sized freezers, he collects $3.00 per month, payable a year in advance, with customers' right to purchase at any time. The chest type of freezer, he said, is definitely on the way out in favor of the upright type. He predicted that within a few years, only upright models would be available.

At a clinic on plant maintenance and service, mechanical details of plant operation and maintenance was discussed and many interesting points were brought out. Among some of the subjects covered were how to get sludge out of the condenser; saving water with use of an air-cooled condenser and methods of painting that will avoid odors.

Another event of much interest to locker plant operators was the "ham" show in which a number of prizes were offered for the best hams presented.

Entertainment Program

A special program for the ladies included a visit to radio stations and tours of the city. Monday evening the members of the convention enjoyed a special entertainment by Sulie Harand and review of South Pacific with music. Tuesday evening the annual convention banquet was held in the Grand Ballroom of the Palmer House, followed by a floor show and dancing.

Exhibits

A very interesting part of the convention was the annual exhibit occupying 64 booths covering practically the entire exhibit space on the fourth floor of the Palmer House adjoining the convention hall. In these exhibits were shown a complete line of locker plant equipment and supplies, advertising materials, containers, home freezers, packaging materials, refrigeration equipment and poultry picking devices, curing materials, and other merchandise.

Frozen Spring Spinach Pack Shows Decrease

THE 1950 pack of spring spinach amounted to 28,335,195 pounds, a decline of 24 percent from the 37,348,572 pounds packed last year, according to The National Association of Frozen Food Packers. Although much smaller than last year, the 1950 pack was far above that of any year prior to 1949. Similar to the situation in previous years, the greatest part of the volume again was packed in 14 ounce containers. This size represented about three-fourths of the total pack in 1950.

TOTAL UNITED STATES PACK OF FROZEN SPINACH BY YEARS

Year	Pounds	Year	Pounds
1944	12,794,679	1947	11,779,585
1945	12,661,154	1948	19,460,909
1946	18,306,950	1949	37,348,572
		1950	28,335,195

Frozen Asparagus Pack Shows Increase

THE frozen asparagus pack increased moderately in 1950, to 19,353,951 pounds. This production was greater than that of any year since 1946, according to a report issued by the National Association of Frozen Food Packers. Again this year, retail sizes predominated, representing about 75 percent of the total. Most of the remainder of the pack went into the 2½ pound size.

TOTAL UNITED STATES PACK OF FROZEN ASPARAGUS BY YEARS

Year	Pounds	Year	Pounds
1942	5,769,452	1946	28,316,074
1943	9,619,255	1947	10,737,171
1944	12,339,171	1948	18,321,209
1945	20,637,590	1949	18,422,240
		1950	19,353,951

Changes in Frozen Foods

THE change in food tastes and altered meals brought about by new developments in refrigerated shipments, in freezing, in canning and in air transport is basis of an article in the September issue of "Look" magazine. The article, illustrated with dishes of food in four colors shows that their developments in food processing have erased boundaries as well as seasons so that now summer delicacies are on hand all year round and everywhere.

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Survey of Locker Plants Shows Number Nearly Doubled Since 1945

THE first survey of frozen food locker plants by the U. S. Department of Agriculture since the war years shows the number of plants on January 1, 1950, nearly doubling since midsummer of 1945. L. B. Mann of the Farm Credit Administration, speaking at the National Frozen Food Locker Convention in Chicago, said they now number 11,400, serve about 15 million people, and process 1.3 billion pounds of food yearly.

However this survey, made by FCA and the Bureau of Agricultural Economics under the Research and Marketing Act, also points to some declines in this comparatively new industry. A drop of 16 percent in the average number of lockers rented and 16 percent in average volume of food processed per plant since the survey for 1945, made as of January 1, 1946, indicated there was good reason why the building boom in new plants began to slow up in 1948.

High rental rates and service costs have caused some trouble spots. Rentals have mounted steadily over recent years until January 1, 1950, showed them averaging $13.00 per locker as compared with $11.40 in 1946 and $9.80 in 1941. Rates for cutting, wrapping, freezing, and grinding services went up to average $3.28 per hundredweight in 1950 as compared with $2.37 in 1946 and $1.71 in 1942.

Other Services

Many locker plants have spread into other services to help counteract the decline in number of lockers rented and food processed for each locker. Many rent unused and surplus space to commercial firms to store their goods at low temperatures. And this survey pointed to something new in the past four or five years, servicing home units. Estimates showed these 11,400 locker plants now servicing about 880,000 home freezer unit patrons, half of whom do not rent lockers.

This latest survey, the seventh made since 1940 by the Farm Credit Administration, also shows other services besides rentals becoming increasingly important. Of all the plants reporting, 23 percent provided custom slaughter for non-locker patrons, 22 percent bought livestock so they could sell meat, 24 percent cured and smoked meat for sale, and 27 percent manufactured pork sausage for sale. In addition, 51 percent of the plants reported selling commercial frozen food, 43 percent wholesaled packer beef and pork, and three percent manufactured ice cream for sale. Meat made up 87 percent of all the food processed by these plants, fruits and vegetables six percent, poultry four percent, and game three percent.

The plants built since the war were considerably larger than in the early 40's averaging 500 locker boxes per plant on January 1, 1950 compared to 330 in 1940. Fewer of these lockers were rented on January 1, 1950, only 387 as compared to 464 in 1945, a 16 percent decline from the 99 percent in 1945.

Average number of patrons dropped from 414 per locker plant in 1945 to 343 on January 1, 1950, with the reported number of farm patrons declining from 73 percent to only 66 percent of total patrons. Probably the number of city plants built in recent years accounts for most of this decline in percent of farm patrons. Actually, 72 percent of all locker plants are still located in towns of 5,000 or less, with 40 percent in towns under 1,000.

July 1950 Count

The July 1950 count of locker plants by states, compiled by the Extension Service of the United States Department of Agriculture shows the following:

	1950	1949
Alabama	84	82
Arizona	34	34
Arkansas	116	114
California	540	526
Colorado	225	223
Connecticut	59	59
Delaware	11	11
Florida	76	58
Georgia	172	168
Idaho	202	195
Illinois	596	595
Indiana	349	348
Iowa	875	859
Kansas	525	510
Kentucky	125	118
Louisiana	43	45
Maine	20	18
Maryland	45	43
Massachusetts	45	44
Michigan	375	375
Minnesota	659	675
Mississippi	87	90
Missouri	478	472
Montana	223	221
Nebraska	525	504
Nevada	13	13
New Hampshire	27	27
New Jersey	50	50
New Mexico	58	40
New York	251	235
North Carolina	104	107
North Dakota	300	300
Ohio	425	355
Oklahoma	325	340
Oregon	499	340
Pennsylvania	258	304
Rhode Island	8	8
South Carolina	75	73
South Dakota	296	299
Tennessee	112	131
Texas	546	535
Utah	150	149
Vermont	53	49
Virginia	80	72
Washington	725	671
West Virginia	21	19
Wisconsin	653	675
Wyoming	78	66
Total	11,596	11,245

Total number of locker plants in United States, 1938-1950.

YEAR	PLANTS	INCREASE
1938	1269	
1939	1861	592
1940	2870	1009
1941	3623	753
1942	4323	700
1943	4559	236
1944	5282	723
1945	6484	1182
1946	8025	1561
1947	9529	1504
1948	10617	1088
1049	11245	628
1950	11596	351

Revised Frozen Orange Standards

U. S. STANDARDS for grades of frozen concentrated orange juice, published in the Federal Register August 23, will become effective 30 days after such publication. Adoption of new standards was announced in the September issue of ICE AND REFRIGERATION.

The first grade standards of this product, published in July of 1949, did not provide for the addition of any ingredients other than fresh orange juice in manufacturing the concentrate. The Department announced then that further consideration would be given to types of frozen concentrated orange juice to which sweetening ingredients had been added.

Studies during the past year have indicated an apparent need for a sweetened type. The revised standards will now include two distinct styles—one with sweetening ingredients added and one without—both of which are required to contain approximately the same orange juice solids.

This product, the Department reported, is substantially the same as freshly extracted orange juice when reconstituted by adding 3 parts of water to one part of the frozen concentrate, if it has been properly packed and handled at proper temperatures until it is used by the consumer.

WHEN THE PROBLEM IS

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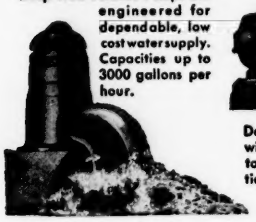

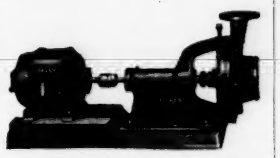

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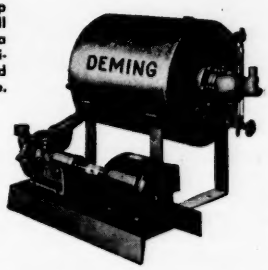

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THE COMPLETE LINE

PUMPS AND WATER SYSTEMS

The Refrigeration

BRINE MEDIUM

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3. Makes your equipment last longer.
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Available for immediate shipment from more than 200 local stock points.

Free literature on brine maintenance available on request.

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Frozen Food Industry Plans Convention

Meeting at Traverse City, Mich., representatives of the frozen food industry make plans for the annual frozen foods convention to be held in San Francisco, February 27. Those in the picture are Watson Rogers, National Food Brokers Association; L.S. Martin, National Association Frozen Food Packers; Harry K. Schauffler, National Wholesale Frozen Food Distributors; and Wm. Dalton, National Association of Refrigerated Warehouses.

PRELIMINARY plans for the 1951 National Frozen Food Industry Convention were developed at a meeting of an All-Industry Convention Committee held July 31 at Traverse City, Mich. Those attending the meeting to plan the convention, to be held in San Francisco from February 27 to March 2, 1951, were: E. J. Watson, Convention Committee Chairman, Alvin Langfield, William Walsh, William Dalton, Watson Rogers, Fred Deutsch, William Pavlovski, A. J. Rogers, L. S. Martin, Harry Schauffler, and E. W. Peterson.

Tentative Program

Included among the convention arrangements, announced following the meeting, were a tentative program and details concerning hotel accommodations and a convention tour. Outlined below is the tentative program, with all events scheduled for the St. Francis Hotel, unless otherwise indicated:

Sunday, February 25: 3:00 p.m. Distributors Directors Meeting.

Monday, February 26: 10:00 a.m. Packers Directors Meeting, Distributors Directors Meeting; 7:00 p.m. All-Industry cocktail party.

Tuesday, February 27: 10:00 a.m. Packers Panel; Distributors Panel; 12:00 noon All-Industry luncheon; afternoon open.

Wednesday, February 28: 10:00 a.m. Panel—Packers; Panel—Distributors; 12:30 p.m. Packers Luncheon and Annual Meeting, members only; Distributors Luncheon, and Annual Meeting, members only.

Thursday, March 1: 8:00 a.m. Distributors brand breakfast; 2:00 p.m. Packers Directors meeting; Distributors Directors meeting; 7:00 p.m. All-Industry banquet.

Friday, March 2: 10:00 a.m. All-Industry convention committee meeting.

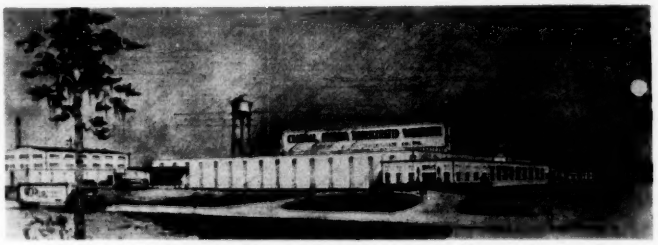
A Housing Committee will be appointed to handle all hotel accommodations for delegates attending the Convention. Forms for requesting room reservations will be provided to all who plan to attend. These forms will be filled out and returned to the Committee in San Francisco, and accommodations will then be confirmed direct to the individual delegates.

As previously announced, a special tour of the West has been arranged in conjunction with the Convention. This tour will leave Chicago on Friday, February 23 and will feature many of the most scenic and interesting points of the West, including the Colorado Rockies, Royal Gorge, Salt Lake City, Yosemite National Park, Southern California Beaches, Mission Inn (Riverside, Calif.) and the Grand Canyon. Special sightseeing trips have been arranged and this tour promises to be a marvelous experience for all who take it. The tour will be sponsored by the Frozen Food Industry Convention Committee and handled in cooperation with the United States Travel Agency.

New Warehouse for Orange Concentrate

A LARGE refrigerated warehouse will be constructed for use by the Minute Maid Corporation, processors of frozen citrus concentrates at Plymouth, Fla., H. R. Cloud, vice-president of Minute Maid has announced. The building is expected to be completed early in January 1951.

The Central Florida refrigerated warehouse will be built by A. M. McDonald, Atlanta and New York, who will act as president of the corporation. Vice-president is Harry M. Lorbach of Miami and D. H. Burk of Miami is secretary and treasurer. Construction will be by Mangham and Butler, Miami contractors.



Artist's conception of new refrigerated warehouse being built at Plymouth, Fla. for use by Minute Maid. Corp.

The main building will be 371 by 282 feet with a minimum ceiling height of 18 feet 6 inches in the cold storage section. In addition, a separate building 80 by 105 feet will be constructed for office facilities, engine room, and housing of some shop equipment. Content of the main building will be approximately 2,500,000 cubic feet, providing storage for more than 1300 cars of concentrate and other zero temperature products. The building will be equipped with railroad siding facilities of the Seaboard Air Line Railway in addition to truck loading ramps and platforms.

The architect was L. W. Geisler Kissimmee. Lorbach also served as project engineer. The building will include many novel features not commonly found in cold storage warehouses. They will decrease the cost of construction and at the same time increase the efficiency of operation.

Minute Maid, in addition to having a substantial equity in the ownership of the new corporation, will have the plant under lease for 10 years.

The connected electric load will be in excess of 750 hp. with a refrigeration capacity of 175 tons of ice for each 24-hour period.

DRY Pure, Uniform and Dependable, too!

99.99% MINIMUM ANHYDROUS AMMONIA

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Sales and Reorganizations

San Francisco, Calif.—Tiedemann & Harris, old-time San Francisco provision house has been sold to Krey Packing Co., national meat packers of St. Louis, according to William J. Bagley, general manager of the San Francisco plant.

Harrisburg, Ark.—The Arkansas Public Service Commission authorized the City of Harrisburg to buy the Harrisburg Ice and Water Company from Alden Baker for $25,000.

Uleta, Fla.—Plantation Foods, Inc. of Uleta and Duchess Ice Cream Co. Tallahassee, Fla. have merged. The Uleta plant was originally built for the quick freezing of pineapple. Now that pineapple has been developed to yield crops each month of the year there is no need for the quick freezing plant and it was converted into an ice cream factory.

Augusta, Ga.—The Borden Company recently announced it had acquired "in an exchange of stocks and other considerations" the Sancken Dairy Enterprises, headed by George A. Sancken Jr. located here. He will become regional chairman of Borden's South Atlantic region. The companies acquired are Georgia-Carolina Dairies, Augusta; Dixie Dairies, Macon and Albany, Ga.; Richland Daries, Columbia, S. C.; Greenwood Creamery, Greenwood, S. C. and Hancock Creamery, Sparta, Ga.

Taylorville, Ill.—The Kerns Ice Co. owned by N. R. and A. D. Kerns, has been sold to Capt. and Mrs. E. E. Watkins of Taylorville who assumed possession recently. The deal included the ice plant building and all equipment and a fleet of trucks.

Frankfort, Ind.—Official announcement was made recently of a new corporation, The S-W Packing Co. Inc., which will take over the entire operation of the Milner Provision Co. Inc., of this city. Facilities include a modern plant with 200,000 sq. ft. of floor space, separate general office building and the Frankfort Stock Yards.

Pascagoula, Miss.—Hermes F. Gautier announced recently that he has purchased the interests of Henry W. Gautier and C. G. Johnson in the Pascagoula Ice & Coal Co.

Freewater, Ore.—The Freewater packing plant of the F. G. Lamb & Co. was sold to the Lamb Fruit Company, which company, in addition to plants at Yakima, Wash.; Freewater and Weston also operate plants at Gleed, Elgin and Dayton, Ore.

Columbia, S. C.—Merger of the Superior Ice Cream Co. Inc. with Coble Dairy Products, Inc. of South Carolina, was announced recently.

Spartanburg, S. C.—Foremost Dairies, Inc., recently announced purchase of Blue Bird Ice Cream, Inc., here. The Blue Bird company will be operated under its present name. Purchase price was not disclosed.

Crozet, Va.—A consolidation of the two cold storage companies here was announced September 5 by Wright Harrison, president of the Crozet Cold Storage Corp. The Herbert Cold Storage and Ice Co. has been merged with the Crozet Cold Storage, and will be known as Crozet Cold Storage Plant No. 2.

Pacific Fruit Express Adds 2100 Refrigerator Cars

ANOTHER 2,100 refrigerator cars will be added by Pacific Fruit Express Company to its present fleet of more than 38,000 cars, it has been announced by PFE's joint owners, the Union Pacific and Southern Pacific railroads. The new acquisition will raise to approximately 150 million dollars the cost of PFE's fleet modernization and general repair program since World War II for better service to growers and shippers of perishable foods, it was stated.

Included in the newest cars will be 100 heavily insulated super-giant 50-foot cars for use in moving the steadily increasing traffic in frozen foods. The PFE already has 414 cars especially designed for this type of service. The other 2000 new cars will have all the modern improvements already built into other post war cars, including air circulating fans, half stage icing grates for economy where full icing is not needed and sidewall flues. In addition they will have larger door openings employing sliding doors and will be equipped with steel slatted instead of wooden floor racks.

The new cars will be built in the PFE shops at Los Angeles and at Colton, Calif., as soon as materials are available, with first of the new cars scheduled to go into service some time before the middle of next year, according to K. V. Plummer, vice president and general manager of Pacific Fruit Express Company. Since the end of World War II, the PFE has received 9,000 new refrigerator cars.

Book Review

HEAT INSULATION by Gordon B. Wilkes, professor of Heat Engineering, Massachusetts Institute of Technology, Cambridge, Mass. Published by John Wiley & Sons Inc., New York. Ilustrated. 224 pages. Price $4.00. For sale by Nickerson & Collins Co., Chicago 44, Ill.

This book is a compilation of the available information on heat insulation for engineers, architects, and students. Material and data on reflective insulation will be of special interest. For many years information on heat insulation has been scattered throughout varied, unrelated sources. The need for a book that would assemble this information under one cover has been met with this volume. The author has spent more than 35 years in laboratory work, developing new equipment and determining heat transfer data. In addition he has devoted many years to experimental work with reflective insulation and emissivity determinations.

Ice Cools Cold Storage Plant

(Continued from page 61)

openings near the floor which lead the air around the ice before it goes back up to the fans for re-circulation.

George Frantz, house man for Kennedy-Stewart, reports that when the plant was used for pre-cooling peaches, one loading of ice in the bunkers would pre-cool the warm fruit and then hold it for two days. Peaches were cooled to 40 degrees, Emperors will be held at 34 degrees. During the peach season, the cold rooms were used not only for pre-cooling the fruit after packing, but also to hold the fruit in field boxes when it was delivered to the plant faster than the packing crew could handle it.

More Refrigerator Cars Are Needed Say Shippers

FRUIT and vegetable shippers are urging American railroads to start building 50,000 new refrigerator cars as soon as possible.

The request was made by John R. Van Arnum, secretary of the National League of Wholesale Fresh Fruit and Vegetable Distributors, in a letter to W. T. Faricy, president of the Association of American Railroads.

Mr. Van Arnum said that according to A.A.R. figures, there are only 95,000 serviceable refrigerator cars available at present, compared with 110,000 in 1941 and 137,000 in 1931. He said this decline was in spite of a 25 per cent increase in commercial production of fresh fruits and vegetables since 1931.

Trucks have been carrying much of this freight, Mr. Van Arnum admitted, but he warned that increased military demand on the automotive and petroleum industries would force a decline in the number of trucks available to the fresh fruit and vegetable industry.

New Refrigerator Cars for Great Northern

PURCHASE of 400 new refrigerator cars has been authorized by the board of directors of the Great Northern Railroad. The board approved spending $3,400,000 for the refrigerator cars which will be used by the Western Fruit Express Company, the railroad's refrigeration cars subsidiary. Rebuilding of 100 refrigerator çars at a cost of $474,000 also was authorized.

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Good Features

The biggest water users of the nation agree that Layne Well Water Systems and Layne Vertical Turbine Pumps have more good features than any other make. They are more rugged in construction, heavier in production—and cost less to operate, giving years and years of service for the original installation cost. There is a size for every need, custom built for any depth setting. For catalogs or more information address

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When your ice quality slips—look first at your Air Agitation System. Often that will solve your difficulty.

When there is something needed for your Air Agitation System, look first to Martocello. That will solve your difficulty.

While you are at the N.A.I.I. Convention in Chicago, stop in to see us, Booth 27. We'd like to know how you liked the weather-prediction calendars.

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Take a Tip From Wichita! Mr. Fred E. Kunkle (below), manager of the flourishing City Ice & Delivery Company, Wichita, Kansas . . . one of hundreds of satisfied operators of durable, dependable, profitable S&S Ice Vending Stations.

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AUTOMATIC
ICE VENDING STATIONS

Rock-bottom price . . . tip-top performance . . . guaranteed by 20 years of experience and complete factory assembly by refrigeration specialists. No leaks . . . no extras after delivery. Just plug it in and load it. Your S&S Station locates its own customers!

"A quick service . . . a service your customers like . . . a service that they appreciate!" says Mr. Kunkle. "Sales this year up 33⅓% at this station."

Time-Tested — Trouble-Free. Since 1930 . . . with our first machine still in service . . . a day-and-night, economy-plus ice salesman.

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Highland Park Station
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S&S ICE VENDING MACHINES

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670 Lincoln Avenue
San Jose, California

Economics Controls Act Passed by Congress

(Continued from page 28)

ing war production but also stipulates that the President is authorized "to take such action as may be agreed upon in such conference," provided that it is not inconsistent with the Wage-Hour or Taft-Hartley Acts. In effect, it authorizes the establishment of another War Labor Board.

Control of Consumer and Real Estate Credit

Revival of Regulation W of the Board of Governors of the Federal Reserve System is provided for here. This provides for control of consumer credit by setting up minimum down payments, maximum number of months in which to pay, etc.

The Act also contains ways and means of controlling credit for construction by empowering the President to fix maturities of mortgages and to stipulate the percentage of loans to property values permitted on conventional, FHA, and so-called "G-I" loans.

The final provisions of the Act provide emergency exemptions from the anti-trust laws where such exemptions are necessary to further the defense program.

It provides that such exemptions shall be provided for small-business enterprises as may be feasible without impeding the accomplishment of the objective.

In studying the Act, it becomes apparent at once that many of the provisions are far from clear. Indeed, many are quite ambiguous and will undoubtedly give rise to many difficulties of interpretation and enforcement if and when they become effective.

The President did not request from Congress the broad stand-by controls it handed him to fix prices and wages and he has made it clear that he does not intend soon to invoke all the powers which Congress gave him. In view of the early terminal date of the price-wage control provisions, just ten months from passage of the Act by Congress, the President may not consider it feasible to embark on a wide program of such controls.

The best "estimate of the situation" is that credit controls will be applied first. Then there may be set up some priorities and allocations on such strategic materials as steel and other metals, and perhaps rubber.

Depreciation

(Continued from page 30)

units varies greatly, water cooling towers 15 years, ice cans 10 years, pumps from 15 to 25 years depending on type, compressors 20 to 30 years depending on their speeds, coils from 12 to 20 years depending on their type.

Obviously, if the machinery user employs the composite rate, as many are doing, he has no way of knowing whether he is charging up enough for this expense. Depreciation is enough of a "guestimate" without making it worse by using a composite rate instead of depreciating the individual item or group of similar items.

After extensive appraisal of all factors and considerable field research, we believe that the proposal to write off equipment in five years has merit, it will simplify this troublesome problem and give this industry a chance to salt away funds for replacements and expansion, which are badly needed at this writing. We believe that gearing the write-off to the rubber dollar would cause as much difficulty as the procedures now in effect.

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RECO one of the most important sources for:

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- Ice Tanks
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Be assured, we're doing our utmost to hold the price line. We're leaving nothing undone to give you a better product at a fair price.

We suggest you anticipate your requirements. Let us quote on your next job, there is no obligation.

So, though we'll miss seeing you at the convention, we think we'll be accomplishing much more, for your benefit, by staying home and looking after your needs . . . for now and the future.

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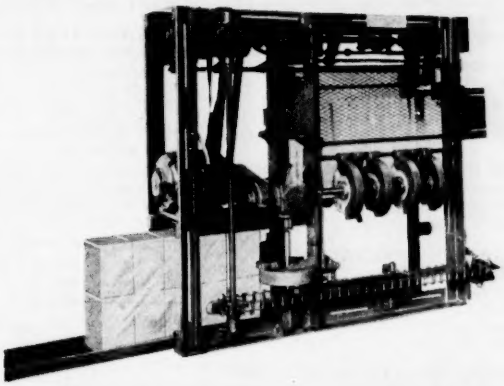

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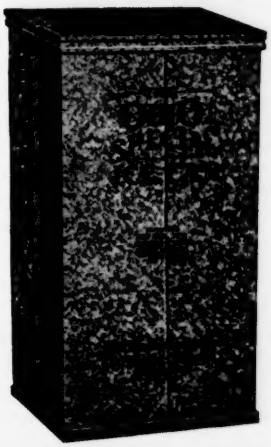

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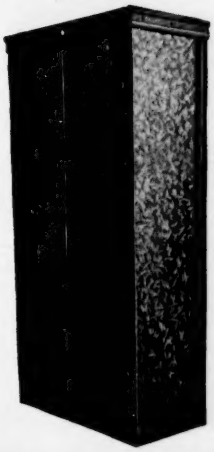

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CONVENTION CALENDAR

FLORIDA ICE ASSOCIATION
October 9-10, 1950
Columbus Hotel, Miami, Fla.
MURIEL WASHBURN, Secretary

NATIONAL ASSOCIATION OF ICE INDUSTRIES
October 31—November 3, 1950
Sherman Hotel, Chicago, Ill.
MOUNT TAYLOR, Executive Secretary

ALL INDUSTRY EXPOSITION
November 5-8, 1950
Navy Pier, Chicago, Ill.
GEO. MILLS, Director

CANADIAN ASSOCIATION OF ICE INDUSTRIES
November 7-9, 1950
Chateau Frontenac Hotel,
Quebec City, Canada
MRS. MILDRED CROFT, Secretary

DELTA STATES ICE ASSOCIATION
November 13-15, 1950
Hotel Marion, Little Rock, Ark.
R. N. MILLING, Secretary

ILLINOIS ASSOCIATION OF ICE INDUSTRIES
November 27-29, 1950
Abraham Lincoln Hotel, Springfield, Ill.
WM. WRIGHT, Secretary

NATIONAL ASS'N. PRACTICAL REFRIGERATING ENGINEERS
November 28-December 1, 1950
Hollywood-Roosevelt Hotel,
Los Angeles, California
EMERSON BRANDT, Secretary

AMERICAN SOCIETY OF REFRIGERATING ENGINEERS
December 3-8, 1950
Commodore Hotel, New York, N. Y.
M. O. TURPIN, Secretary

CALIFORNIA ASSOCIATION OF ICE INDUSTRIES
December 4-5, 1950
Fairmont Hotel, San Francisco, Cal.
JACK L. DAWSON, Exec. Mgr.

SOUTH CAROLINA ICE MANUFACTURERS ASSOCIATION
December 11-12, 1950
Columbia, S. C.
GEORGE L. ENGLISH, Secretary

MISSOURI ICE MANUFACTURERS ASSOCIATION
January 8-10, 1951
Hotel President, Kansas City, Mo.
V. A. ESPHORST, Secy-treas.

THE REFRIGERATION RESEARCH FOUNDATION
February 2-4, 1951
Statler Hotel, Boston, Mass.
H. C. DIEHL, Director

AMERICAN WAREHOUSEMEN'S ASSOCIATION
February 5-8, 1951
Statler Hotel, Boston, Mass.
WM. DALTON, Executive Secretary

OKLAHOMA ASSOCIATION OF ICE INDUSTRIES
January 21-23, 1951
Biltmore Hotel, Oklahoma City, Okla.
HARRY T. HUDSON, JR., Exec.-Secy.

NATIONAL ASSOCIATION OF REFRIGERATED WAREHOUSES
February 5-8, 1951
Statler Hotel, Boston, Mass.
WM. DALTON, Executive Vice-pres.

SOUTHWESTERN ICE MANUFACTURERS' ASSOCIATION
February 14-16, 1951
The Hotel Galvez, Galveston, Tex.
P. A. WEATHERRED, Secy.-Counsel

OHIO ASSOCIATION OF ICE INDUSTRIES
February 25-27, 1951
Deshler-Wallick Hotel, Columbus, O.
GUY W. JACOBS, Secretary

Fires and Accidents

Juneau, Alaska—A fire recently swept through the Juneau Cold Storage Co. building here.

Attleboro, Mass.—Fire in a smoke stack at the Citizens Ice Co., caused small damage.

Knoxville, Tenn.—Fire caused by defective wiring did $2000 damage to an unused ice storage plant at 3500 McCalla Ave., here. The building is owned by Atlantic Ice Co.

New Incorporation

Alexandria, La.—Shrimpers Ice, Inc., cold storage and freezing company, filed articles of incorporation recently, listing capital stock at $12,000.

ASSOCIATION DIRECTORY

AMERICAN INSTITUTE OF REFRIGERATION
H. T. McDermott, Gen. Secretary, 433 N. Waller, Chicago 44, Ill.

NATIONAL ASSOCIATION OF ICE INDUSTRIES
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83 Winter St., Providence, R. I.

NEW YORK STATE ASS'N REF. WAREHOUSES
Chas. G. Ashe, Secretary
101 Columbia St., Buffalo 5, N. Y.

NORTH CAROLINA ICE ASSOCIATION
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Capital Ice & Coal Co., Raleigh, N. C.

NORTHWEST ASSOCIATION OF ICE INDUSTRIES
Ed. H. Shea, Secretary
2027 N. E. Schuyler, Portland, Oreg.

OHIO ASSOCIATION OF ICE INDUSTRIES
Guy W. Jacobs, Secretary
The Steubenville Ice Co., Steubenville, O.

OKLAHOMA ASSOCIATION OF ICE INDUSTRIES
Harry T. Hudson, Executive Secretary
708-9 Perrine Building, Oklahoma City, Okla.

PACIFIC STATES COLD STORAGE WAREHOUSEMEN'S ASSOCIATION
Jack L. Dawson, Secretary
461 Market St., San Francisco, Calif.

SOUTH CAROLINA ICE MANUFACTURERS ASS'N
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P. O. Box 603, Columbia, S. C.

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Richard W. Florrid, Secretary
11½ Forsyth St. N. W., Atlanta, Ga.

SOUTHWESTERN ICE MANUFACTURERS ASS'N
P. A. Weatherred, Secy. Counsel,
Mercantile Bank Bldg., Dallas, Tex.

TENNESSEE ICE MANUFACTURERS ASSOCIATION
W. E. Harlan, Secretary
Mt. Pleasant Ice Co., Mt. Pleasant, Tenn.

TRI-STATE ASSOCIATION OF ICE INDUSTRIES
L. R. Girton, Secretary
260 Boyce-Greeley Bldg., Sioux Falls, S.D.

VIRGINIA ICE MANUFACTURERS ASSOCIATION
H. H. Snyder, Secretary
Alexandria, Va.

WEST VIRGINIA ASSOCIATION OF ICE INDUSTRIES
E. Dana Smith, Secretary
Diamond Ice & Coal Co., Charleston, W. Va.

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Whether your next job be for a single bend, or coil or complete piping system, Chicago Nipple can supply your requirements. Experienced workmen, practical engineers, and modern equipment reflect the quality of our products.

Coils are of selected ammonia pipe—all joints are electrically welded—checked under water with an air pressure of 300 pounds to guarantee tightness.

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NO OTHER COMPRESSOR VALVE OFFERS YOU ALL OF THESE ADVANTAGES

- Lower power costs.
- Increased capacity.
- Elimination of enforced shutdowns due to faulty compressor valves.
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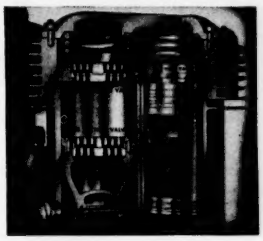
- Increased net profits.



VOSS VALVES are indispensable for use where loads are heaviest — where safety and reliability are paramount. They run smoothly — with less power — at higher speeds — without overheating. You can replace your present valves with VOSS VALVES without any change in your compressor.

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How You Save with the NEW Niagara Method of Air Conditioning

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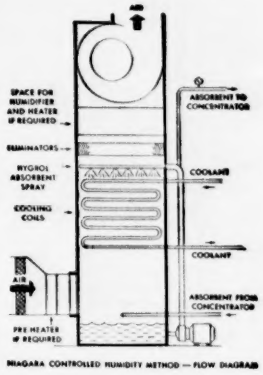
Because it absorbs moisture from the air directly, the new Niagara Controlled Humidity Method uses less, or no, mechanical refrigeration for dehumidifying. You save first costs and installing of heavy machinery. You save space, maintenance expense, power. Easier, convenient operation.

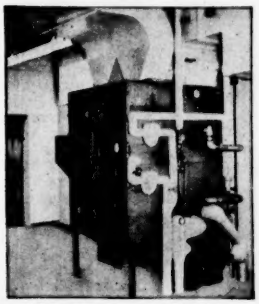


NIAGARA CONTROLLED HUMIDITY METHOD — FLOW DIAGRAM

Using "Hygrol" hygienic absorbent liquid, this method gives complete control of temperature and relative humidity. Especially, it is a better way to obtain dry air for drying processes, packaging hygroscopic materials, preventing moisture damage to metals, and obtaining better quality for chemical process products and food products—or in obtaining better results in comfort air conditioning for office or laboratory at lower refrigeration costs.

The diagram shows how filtered air is dehumidified by passing thru a spray of "Hygrol"— a liquid absorbent which removes air-borne moisture. This liquid is hygienic and non-corrosive; it contains no salts or solids to precipitate and cause maintenance troubles. It is continuously reconcentrated at the same rate at which it absorbs moisture, providing always the full capacity of the air conditioner, automatically.

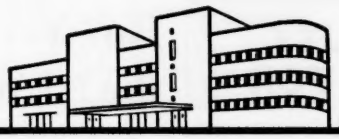
Food Packaging under Controlled Humidity



Niagara Controlled Humidity Air Conditioner

Units provide a range of capacities from 1000 to 20,000 C. F. M. Multiple unit installations are in use successfully. Records of results are available.

For further information, write to Niagara Blower Company, Dept. IC 405 Lexington Ave., New York 17, N. Y.

NEW PLANTS and  IMPROVEMENTS

This Department each month presents the more important developments covering new constructions, as well as additions, improvements, remodeling, and installations of new equipment in ice and cold storage plants and other industrial plants that use refrigeration. News notes on all such new constructions and improvements are invited.

Arizona

Phoenix, Ariz.—Arizona Frozen Foods Corp. has acquired a five-acre tract adjoining its present plant at 2100 West McDowell Road as the site for the addition of three concrete freezing houses which will contain a total of 290,000 sq. ft. The tract cost $250,000. The plant will process frozen citrus juice. Construction will start January 1, 1951.

California

Sacramento, Calif.—A three-year expansion project, reresenting an investment of $500,000, has been completed by The Crystal Ice and Cold Storage Co., 1812 Seventeenth St. The work brings the total area of the plant facilities to 750,000 square feet. The expansion program was launched in 1947 with the remodeling of the firm's main structure. Another cold storage building was constructed on Sixteenth St. two years ago. Last March work was started on an 80 x 160 foot second story for the Sixteenth St. building. The last project was a 36 x 72 foot cold storage warehouse which was reported being built in the August 1950 issue of ICE AND REFRIGERATION.

Florida

Ormond Beach, Fla.—Plans for the construction of a new $50,000 ice plant here was announced recently. To be constructed by Roger Q. Sanders of Atlanta, Ga., the plant will have a capacity of 25 tons a day. It will be located on U. S. Highway 1, near Dix Ave., on a lot 130 by 400 ft. Equipment of the new plant will include coin operated devices for self-service of ice.

Plymouth, Fla.—A large refrigerated warehouse will be constructed for use by Minute Maid Corporation, processors of concentrated frozen orange concentrate here. H. R. Cloud, vice-president of Minute Maid has announced. The building is expected to be completed early in January 1951. The main building will be 371 by 282 feet with a minimum ceiling height of 18 feet 6 inches in the cold storage section. In addition, a separate building 80 by 105 feet will be constructed for office facilities and housing of some shop equipment.

Indiana

Hartford City, Ind.—The Hartford Ice and Coal Co. has recently completed the installation of a new 25 ton electric plant here. The plant is operated by J. M. Fadely. Part of the production of the new plant will be utilized in nearby Portland where the company has subsidiary refrigeration service.

Marion, Ind.—Polar Ice and Fuel Co. here has installed an ice vending machine at their plant, Fifteenth and McClure Sts., according to announcement made recently by Sam Cox, manager. The machine dispenses block ice, crushed ice and ice cubes in water proof bags.

North Manchester, Ind.—Arden Strauss of J. W. Strauss & Son is currently remodeling the ice service facilities. A new and modern ice station will provide efficient and readily accessible retail service.

Maine

Portland, Me.—Portland Sebago Ice Co. here has installed the first automatic ice vending station in this city. Erected at the company's quarters on Commercial Street, the vending machine will supply 24-hour service.

Michigan

Detroit, Mich.—Consumer's Public Service Co. here has two model No. 14 cake and two Model 14 bag ice Polar vendors in service.

Fremont, Mich.—Officers of the Fremont Cold Storage Co. Inc., recently announced the opening of a commercial cold storage plant in the basement of a building at 422 West Main St. The storage will maintain a 32 degree temperature for 14,000 bushels of fruit or produce. The organization offers a completely modern cold storage with scientific and sanitary control.

Minnesota

Hopkins, Minn.—Plans are being made to construct a 1¼ million dollar cold storage plant here to be used for a poultry processing plant. The Merchants Refrigeration Co. of New York is planning to build on 12 acres of land at the southeast corner of Monck Ave. and Lake Street, here, on which it has an option. The building will be 520 x 240 ft.

Faribault, Minn.—The Marigold Ice Co. has installed a model No. 1812 Polar cabinet.

Hutchinson, Minn.—A No. 2615 Polar Station with three vendors has been installed here by the Cedar Sanitary Ice Co. of Minneapolis which has also installed a No. 2614 station and vendors at Belle Plain.

Princeton, Minn.—Woodrow Southard is operating a No. 2414 Polar station with vendors for both cake and bag ice here.

Mississippi

Pascagoula, Miss.—The Pascagoula Ice & Coal Company will construct a 40 by 47 foot building at this North Pascagoula Street plant to house a quick-freeze capable of processing 20,000 pounds daily. Hermes Gautier announced recently. In addition to the freeze plant, a zero temperature holding room with a storage capacity of 500,000 pounds will be installed, with provisions to be made to increase this to one million pounds if necessary. The new building should be completed in time to process shrimp in November.

Missouri

Cape Girardeau, Mo.—The Pure Ice Company has two model No. 16-B Polar vendors they recently installed.

New Jersey

Atlantic City, N. J.—A model 20-C Polar cake ice vendor has been installed by the Atlantic City Ice and Cold Storage Co.

Avon, N. J.—Seaboard Service is operating two model 24-C Polar cake ice vendors.

New Mexico

Carlsbad, N. Mex.—The Bond Ice Co. here has installed a three belt combination Polar vendor for vending cakes and bags of ice.

North Carolina

Wadesboro, N. C.—A No. 148 Polar station with two vendors has been installed here by the Wadesboro Ice and Fuel Co.

Ohio

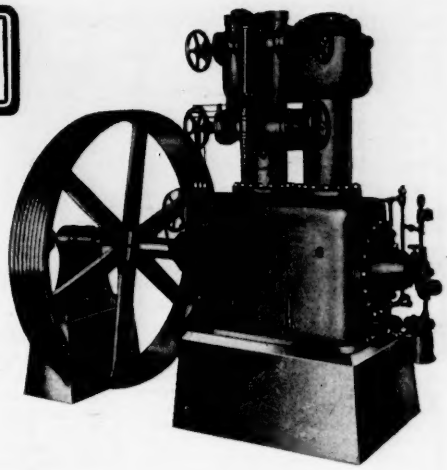
Geneva, Ohio—The Fisher-Spiegel Inc. plant is building a new addition, which is to be used for a cold storage room for grape juice. Work on the addition began several months ago and is now almost complete. The capacity is approximately 400,000 gallons. In addition to the grape juice, Fisher-Spiegel now has facilities for handling 200,000 bushels of apples during the season.

Orville, Ohio—Orville Municipal Utilities has installed a polar one-belt ice cake vendor.

Pennsylvania

Harrisburg, Pa.—The General State Authority recently awarded $560,249 in contracts for construction of new food preparation and refrigeration facilities at the Rockview prison farm in Centre County.

Sterling DEPENDABLE REFRIGERATION



The phrase "STERLING DEPENDABLE REFRIGERATION" is more than a slogan—it's a fact.

Built with rugged strength for endurance, with advanced design for efficiency and economy of operation, STERLING Ammonia Compressors are the product of more than fifty years of "know how" in the manufacturing of refrigeration machinery and equipment.

A complete range of sizes insures the correct compressor for each application.

Deliveries are, at present, current—most models of compressors are available from stock.

For complete information, see your nearest STERLING distributor, or write the factory.

REYNOLDS MANUFACTURING CO.

SPRINGFIELD *"Builders of Fine Refrigeration Equipment"* **MISSOURI**

PITTSBURGH *Air Pressure Tested* COILS

Electrically welded, continuous; Air-Pressure-Tested while submerged in water. Built to your specifications. Send for new Coil Data Book and let us quote.

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SUPREME ICE CRUSHERS

The outstanding feature of the machine illustrated is the revolving comb on swinging front plate, Pat. No. 2.264.049. This construction will crush chunks from "pea-coal" up to 4½", without changing the comb.

PLATFORM MODEL 11

MORE THAN 50 OTHER MODELS RANGING IN CAPACITY FROM 1 TO 15 TON/HOUR.

Contact your local dealer or write for bulletin 200/b

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Factory: 36 Meadow Str. East Orange, N. J.
Sales Office: 165 Broadway New York 6, N. Y.

Shamokin, Pa.—Fuhrmann & Schmidt Brewing Co. recently announced it has awarded a contract to Emory L. Miller and Son, Shamokin, for construction of a new annex to the company's plant on South Harrison St. which will cost between $120,000 and $125,000.

South Carolina

Dillon, S. C.—Dillon Ice Company recently installed a No. 22-B Polar station.

Lancaster, S. C.—Builders Supply Company recently installed a No. 148 Polar station with two vendors.

Tennessee

Dayton, Tenn.—Southern Freezing and Preserving Co. Inc., has expanded its plant this year at a cost of over $100,000. At the peak of the spring strawberry season, the company employed over 200, although the permanent payroll staff is 25 persons.

Humboldt, Tenn.—Construction of a large quick-freeze and storage plant here is being planned by the Beare Ice & Coal Co. The new plant, expected to be in operation by March 15, 1951, will have a freezing capacity of 200,000 lbs every 24 hours and 1½ million lbs storage capacity. Fruits, vegetables, meat, and poultry grown by farmers in that West Tennessee area will be processed.

Loudon, Tenn.—Consolidated Ice Company is operating two Polar vendors. One is a model No. 18-B with three belts, and the other is a No. 20-B with two belts.

Oak Ridge, Tenn.—Clinton Ice Co. Clinton has installed two Polar vending stations. Both are No. 2212 and have two vendors.

Paris, Tenn.—Peoples Ice Company has installed a No. 209 Polar station with three vendors.

Texas

El Paso, Tex.—The Consumer's Ice Co. here is operating two model 16 Polar vendors and a model No. 20-B Polar vendor.

El Paso, Tex.—Two No. 24 Polar vendors and one No. 38 Polar vendor have been installed at the plant of Spears & Miller.

Herford, Tex.—The Herford Ice Company plant has been completed and is now turning out 75 tons of block ice and 75 tons of crushed ice daily. Rip Underwood of Amarillo and Reginald Williams of Oklahoma own the new company. The building is of sheet iron construction and cost $250,000 including equipment. It has a storage vault capable of holding 2,500 tons. No ice will be sold for domestic use. Announcement of plans to construct this plant appeared in the June 1950 issue of ICE AND REFRIGERATION.

Fort Worth, Tex.—Arlington Heights Ice Co. has three Model No. 14 Polar vendors, each with two belts.

Lott, Tex.—A No. 024 Polar storage station has been installed by the Southwestern Electric Service Company.

Louise, Tex.—Central Power & Light Company installed a Polar cabinet for ice storage. They also installed a model No. 150 storage cabinet at Skidmore.

McGregor, Tex.—Four Polar vendors are in operation at the plant of the McGregor Ice Co.

Palestine, Tex.—The Independent Ice Company installed a Polar storage cabinet.

Vermont

Brattleboro, Vt.—A No. 209 Polar station with two vendors has been installed here by the Crystal Ice & Fuel Co.

Washington

Edmonds, Wash.—The refrigeration plant of the Northwest Fur Breeders Cooperative will be doubled in capacity. The plant is used to freeze and store the by-products of fish canneries and processing plants for use by members of the cooperative who are raising mink for fur production. Storage capacity will be increased to about three million pounds.

Spokane, Wash.—A $75,000 expansion program, including new refrigerating equipment, is planned by Sick's Spokane Breweries, Inc.

Wisconsin

Mayville, Wis.—The Mayville Ice Company has installed a No. 724 Polar storage cabinet.

DEATHS

Harry H. Clark

THE death of Harry H. Clark, president of the Harrisburg Cold Storage Co., Harrisburg, Pa., occurred June 25, 1950. Mr. Clark had just been elected secretary of the Pennsylvania Warehousemen's Association.

In June, 1910, he entered the employ of the Pennsylvania Railroad and maintained his membership in the Brotherhood of Railroad Trainmen until the time of his death. In 1914 he started the manufacture of ice cream and ice. The sale of ice cream was subsequently discontinued while ice sales were expanded. He erected his own plant, which he operated until 1941. In 1936 he established the Harrisburg Cold Storage Co. of which he was president and manager. In addition to general cold storage warehousing, this company operated a frozen food locker system.

Mr. Clark was a direct descendant of William Clark, Sussex, England, who with his brothers, John and Richard, came to America in July, 1727. The sheepskin title issued to his ancestor, John, who purchased 300 acres of land in Cumberland Valley from the Penns, is still in the Clark family possession.

In addition to being a member of the B. of R. T., Mr. Clark was a member of Zion Lutheran Church of Enola, of Perry Lodge, 458 F. & A. M., of the Harrisburg Consistory, of the Loyal Order of Moose. He was a member of the Harrisburg Chamber of Commerce, Harrisburg Executive Club, Foreign Policy Association, American Warehousemen's Association, West Shore Business Men's Association, Atlantic Chapter, National Association of Refrigerated Warehouses, Secretary Pennsylvania Warehousemen's Association, and past president of the Pennsylvania Frozen Food Locker Association.

ABRAM O. JOHNSON who served for six terms as mayor of Monmouth Beach, N. J., and founder of the Monmouth Beach Cold Storage Co. died August 29 at the age of 71. Mr. Johnson was elected a member of the Borough Council when Monmouth Beach was incorporated in 1906 and became the first mayor in 1916. After serving six terms as mayor, he was succeeded by his son, Sidney Johnson.

DAVID B. BIER, banker and vice-president of the Greeley Ice & Storage Co., Greeley, Colo., died August 8. Mr. Bier came to Boulder in 1904 and to Greeley in 1914. He was one of the founders of the first industrial bank in Greeley and was its first president. Besides his position with the ice company, he also was a director of the First National Bank. Surviving are his widow, Mrs. Lillian Bier, and two daughters, Mrs. Regina St. Claire and Mrs. Phyllis Hunter both of Denver.

LOUIS OLSEN, founder and president of the Chicago Artificial Ice Co., died August 29 at his home at Fox Lake, Ill. He was 80 years old. The Chicago Artificial Ice Co., formerly operated two ice plants in Chicago, one of which was taken over by the Jefferson Ice Co. about three years ago, at which time the company was liquidated.

C. L. DAVIS who owned and operated a retail ice and fruit business for many years at Lake City, Fla., died September 7 at his home at Lomita, Calif. He lived at Lake City nearly 50 years before moving to California about three years ago. He was 66 years old.

JEDDY J. MCCLOSKEY, wholesale and retail ice dealer died September 10 at his home, Overbrook, Philadelphia, Pa.

DIMCO CAST ALUMINUM FIN EVAPORATING COIL

★ *Saves Space*

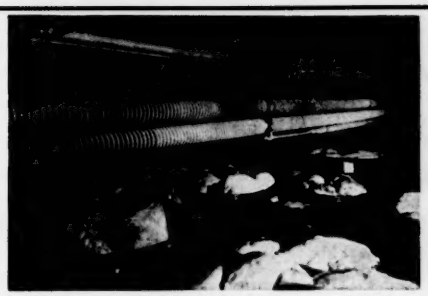
★ *Saves Weight*

★ *Saves Cost*

CAN BE USED WITH ANY REFRIGERANT
SALES AGENCIES SOLICITED

Manufactured by

DETROIT ICE MACHINE COMPANY
2615 Twelfth St., Detroit 16, Mich.



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Mathew H. Klein Co., Detroit, Mich.

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Double Gig Ice Hoist
Fast - Sturdy -
Dependable -

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• ICE CRUSHERS •

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Use our precision-machined air agitation equipment and you will make the very best possible clear raw water ice.

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TUBE CLEANERS • PUMPS • FILTERS • VALVES • ICE TONGS • THERMOMETERS • ICE PICKS

What's New

MACHINERY
APPLIANCES • PROCESSES

New Fittings Stop Leaks

BOTHERSOME small leaks, the bug-a-boo of instrument men, it is claimed, completely eliminated by the use of Swagelok fittings made by the Crawford Fitting Company of Cleveland, Ohio. The patented Swagelok fitting provides a vacuum tight seal. The two ferrules and the threaded chuck inside the Swagelok's nut, clinch tight around the tubing wall, providing a leak-proof seal (see illustration). Laboratory tests have demonstrated that the tubing will burst before the fitting will leak.

New Swagelok Fitting

These fittings will hold heavy or thin wall tubing equally well. They are made for use with tubing material of aluminum, brass, copper, steel, stainless steel and plastic. They save time in assembly. No flaring of the tubing is necessary. They come completely assembled, finger tight. Simply insert the tubing into the nut, apply one and one quarter turns and the job is done.

During assembly the tubing remains stationary throughout the brief tightening operation. Thus, no damaging torque or twisting is transmitted to the tube during the one and one quarter turns. Swagelok fittings are recommended to overcome problems involving pressure, vibration and torque. They are available in brass, Monel, aluminum, steel and stainless steel. They are made in a range of sizes for use with tubing ⅛ to 1 inch outside diameter.

Corrosion Protection

A SYNTHETIC resin product, "Nukemite," acid and alkali resistant coating is described in an illustrated bulletin issued by Nukem Products Corp., Buffalo, N. Y. This coating was designed to afford protection from severe corrosive conditions to metal, concrete and wood surfaces exposed to chemical attack. The resin film is leak proof, odorless and non-contaminating. A copy of the bulletin is available from the Nukem Products Corp.

3 in 1 Feature Gas Mask

AN entirely new approved gas mask face piece which provides chin-style, chest-style and hose-mask connections in one unit and retains all the full-vision advantages of their other types has been announced by Acme Protection Equipment Co., Chicago, Ill.

New gas mask face piece

According to the announcement, the new face piece, known as No. 6, provides the way to use the same mask for three different services, thus eliminating the need for a different face piece for each service. It will include the regular Acme features of full-vision and dead-air check valve and will introduce among other innovations, a new type inhalation-exhalation valve for minimum breathing resistance and the 3-in-1 feature to enable use of chin canister, chest canister and hose connections on the same mask.

It is reported that the new approved Acme No. 6 face piece will replace the Acme No. 4 and No. 5 face pieces which were limited to hose and chin canister connections respectively.

Bulletin 504 presenting sectionalized views of the new face piece can be secured by writing Acme Protection Equipment Co., 3037 W. Lake Street, Chicago 12, Ill.

New Leakproof Check Valves

LEAKPROOF Circle Seal Check Valves are now being made available by James-Pond-Clark, Mechanical Engineers of Pasadena, Calif. as standard catalog items in a full range of sizes from ⅛ to 1 in. NPT. Two models are available, designed for standard and very low pressure systems; both are poppet type using an "O" ring seal. Absolute sealing, minimum flow resistance, and leakproof dependability for pneumatic and hydraulic systems are features of the new line, according to the manufacturer. These check valves are claimed to be bubble-tight, providing absolute sealing at any differential pressure. An added feature of the design is quick opening and positive closing at extremely low pressures. Opening pressures are as low as 1 psi differential in the standard pressure types and 4 in. water column in the low pressure types. Poppets close at zero flow before return flow starts. A synthetic rubber "O" ring is used between conical surfaces on the poppet and valve housing, increasing the sealing pressure.

Long Sweep Angle Valves

DESIGNED primarily to produce minimum turbulence in the flow through the valve and for use on slurry service where the solids in suspension tend to plug the conventional type control valve, the Hammel-Dahl Company announces the 7000S series Flo-Tested Long Sweep Angle valves. They are available in angle design only. Anything that can be pumped, it is claimed, can be controlled by a Hammel-Dahl Long Sweep Angle valve.

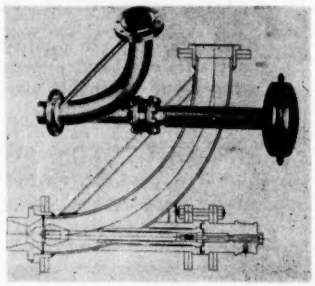


Photo-diagram of new 7000S Series Flo-Tested Long Sweep Angle Valve

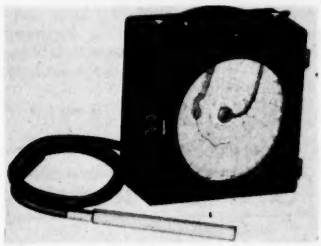
The valve body is a long radius bend. It can be fabricated from any type pipe which can be bent and welded. Frequently on chemical process applications, special alloy piping must be used. Valves of the identical alloy are frequently difficult to ob-

tain. If the chemical company can supply the correct type alloy pipe, a long sweep angle valve can be supplied.

The valve plug is streamlined to offer minimum flow resistance to fluid passing through the valve. The plug guide is extremely long to assure ample guiding of the valve plug even where it is operating very close to the seat. Valve plugs are of the high lift type, normal lift being ½ the nominal valve size, ie, a 6 inch valve will have 3 inch lift.

New Minicorder Charts Temperature Record

A CONTINUOUS record of actual temperatures in refrigerated trucks, railway cars, warehouses, ships, and retail stores' units, is provided by the new Minicorder, a self-contained recording thermometer developed by the Tagliabue Instruments Division of the Weston Electrical Instrument Corp.

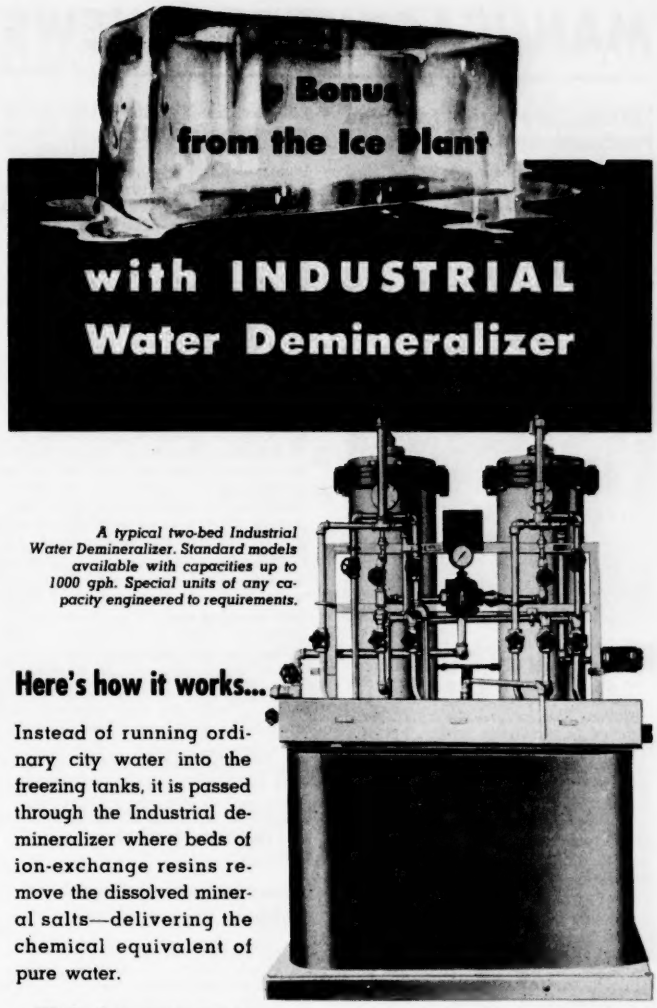


New Tagliabue Minicorder, Temperature Control Aid.

With this new instrument, an accurate check of storage space temperatures is available to those engaged in the shipment, storage, or merchandising of commodities requiring refrigeration.

The Minicorder requires no connection to any power supply, yet records temperatures over a period as long as seven days without attention. A specially-developed shock-proof mechanism makes it particularly satisfactory for use in trucks, trailers, railway refrigerated cars and ships, where it can be installed with the cargo, without shockproof mounting, and depended upon to record an accurate graph of ambient temperatures over a seven-day period.

The new Tag Minicorder is a completely self-contained recording thermometer with a temperature range, in various models, within the limits of minus 30F. to plus 165F. Charts are available for 24-hour, 72-hour, 3-day and 7-day recording. Special two-pen models are made for on-off recording of related equipment. The instrument measures 5¾ x 5¾ x 4¼ inches, and weighs 3½ pounds. Remote recording types are also available.



A typical two-bed Industrial Water Demineralizer. Standard models available with capacities up to 1000 gph. Special units of any capacity engineered to requirements.

Here's how it works...

Instead of running ordinary city water into the freezing tanks, it is passed through the Industrial demineralizer where beds of ion-exchange resins remove the dissolved mineral salts—delivering the chemical equivalent of pure water.

With this pure water there are no minerals to deposit in the core—so the whole core-pulling operation is eliminated. Furthermore, the amount of ice which cracks in the cans is appreciably reduced. And the transparency of the whole cake is improved—your customers will notice the difference and like it.

It's easy to find out how to get this big bonus from your ice plant. Send us an analysis of the water you are using, the quantity you need, and at what rate (gallons per hour). We will send you complete information on demineralized water, estimate of costs, performance data, etc. Better look into it right away.

FILTERS Pressure Type · PUMPS Centrifugal · CORROSION TESTING APPARATUS Salt Fog • Humidity

INDUSTRIAL FILTER & PUMP MFG. CO.

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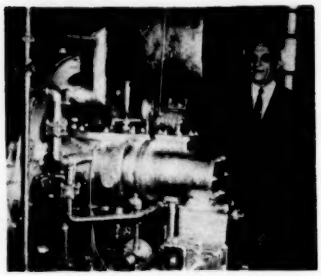
RUBBER DIVISION Vulcanized Linings • Molded Products · WATER DEMINERALIZERS

MANUFACTURERS' NEWS

2000th Centrifugal Machine Produced by Carrier

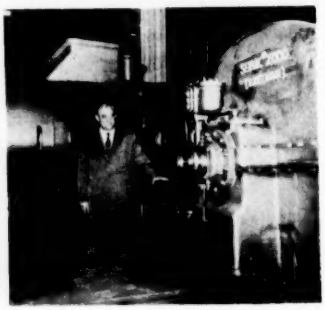
COMPLETION of its 2,000th centrifugal refrigeration machine was marked by Carrier Corporation this month with a brief production-line ceremony at the company's heavy equipment plant in Syracuse, N. Y. The centrifugal refrigeration machine was invented in 1921 by Dr. Willis H. Carrier.



Dr. Willis H. Carrier, who invented the centrifugal refrigeration machine in 1921, is shown with the 2000th such unit to be produced by Carrier Corporation. This particular machine, designed to produce a temperature of 85 degrees below zero, was designed for the Eastman Kodak Company in Rochester for use in film processing.

The machine marked "serial No. 2,000" was shipped immediately to the Eastman Kodak Company in Rochester, N. Y., for installation as part of an ultra-low temperature film processing project. The unit was designed to produce 375 tons of refrigeration at 85 degrees below zero, and has been tested at 100 degrees below zero. On a standard ton basis the big unit would have a refrigerating capacity of 2,800 tons.

Cloud Wampler, president of Carrier Corporation, told the assembled personnel of the centrifugal department that it had taken 20 years to produce the first 1,000 centrifugals and ten years to turn out the next 1,000. He prophesied another 1,000 would be produced in the next five years.



On the same day that Carrier Corporation marked the completion of the 2,000th centrifugal refrigeration machine, Dr. Willis H. Carrier, Chairman Emeritus of the Corporation, visited the Onondaga Pottery Company in Syracuse, N. Y., to inspect the first centrifugal ever produced. He found the unit he invented in 1921 in perfect condition.

Armstrong Cork Lays Cornerstone

SEVERAL hundred prominent scientists, educators, industrialists, and Army, Navy and governmental officials were invited to attend a ceremony at Lancaster, Pa., on September 27 to mark the laying of the cornerstone for the Armstrong Cork Company's new research laboratories. Dr. Vannevar Bush, President of the Carnegie Institution and wartime head of the Office of Scientific Research and Development, presented the main address.

The new laboratories, covering 162,000 square feet of floor space, will compare with the most modern and attractive industrial research and development facilities in the country. Now under construction with most steel erected, they are expected to be completed by mid 1951. The research buildings are located on a 40-acre site four miles west of the center of Lancaster.

Acme Industries Elects Baldwin Vice-president

THE election of Guy L. Baldwin as vice-president has been announced by Acme Industries, Inc., Jackson, Mich. The announcement followed a recent meeting of the Board of company officers. Mr. Baldwin has been with Acme Industries for a number of years and has served in various administrative capacities and management functions.

Guy L. Baldwin

Suit Filed for Use of Water Defrost System

REFRIGERATION Engineering, Inc., has instituted suit against Mitchell's Refrigeration, Carrier distributor in San Diego, and American Frozen Food Lockers of Lemon Grove, California, and Washington Fish & Poultry Market at San Diego for the use of Carrier Water Defrost System.

Suit was filed in the United States District Court, Southern District of California, Southern Division, in San Diego to enjoin the use of the unlicensed water defrost systems and to recover damages.

Bastian Joins Philco

LEONARD C. BASTIAN, well known throughout the refrigeration and air conditioning industry for his work as technical director of the Air Conditioning and Refrigerating Machinery Association during the past twelve years, has joined the engineering staff of Philco Corporation. J. R. Schreiner, formerly associated with the research laboratory of Pennsylvania State College, has joined the ACRMA staff at its Washington headquarters as Staff Engineer.

CATALOGS and BULLETINS

Bulletin on Control of Alkalinity

A NEW eight page bulletin on Applications of Hydrogen-Zeolite softened water has been issued by the Layne affiliate, General Filter Company. Zeolites used in water conditioning were formerly regenerated with salt. Research in resins show regeneration may be with salt or acid. The new booklet shows how to blend the effluent of both methods to produce any desired alkalinity. Alkalinity control is highly desirable in many industries, it is stated, and this bulletin No. 5037 gives the reasons why, along with flow diagrams to show how it is done.

New Bulletin Discusses Pumping Problems

A 16 PAGE bulletin has been issued by Layne & Bowler, Inc., Memphis, Tenn., "Layne Short Coupled Service Pumps," with ideas on solving pumping problems. It contains cut-away drawings of pump bowls and discharge column. Sixteen sketches show the Layne Vertical Turbine Pump applied to river and re-lift service, boosting, recirculation, cooling tower, drainage, gas and oil pumping, and fire pumps.

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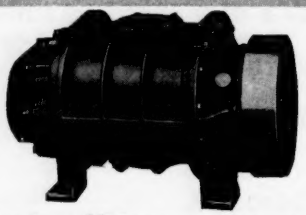

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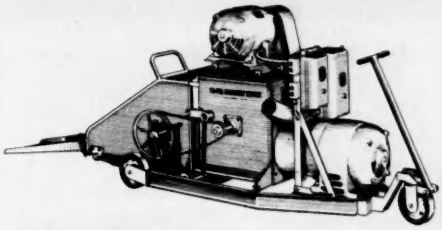

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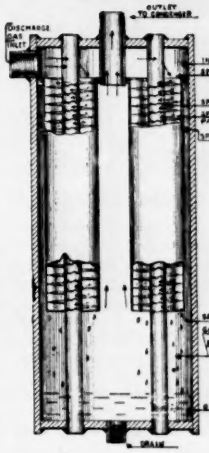

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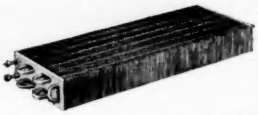

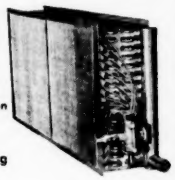

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Ohio Galvanizing & Mfg. Co., Niles, Ohio
Refrigeration Engineering Corp., Philadelphia, Pa.

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Gifford-Wood Co., Hudson, N. Y.
Ice Plant Equipment Co., Inc., Philadelphia, Pa.
Index Coupon & Supply Co., La Porte, Ind.
Refrigeration Engineering Corp., Philadelphia, Pa.
United Ice & Oil Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.

ICE CHUTES
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Gifford-Wood Co., Hudson, N. Y.
Ice Plant Equipment Co., Inc., Philadelphia, Pa.
Jamison Cold Storage Door Co., Hagerstown, Md.
Link-Belt Co., Chicago, Ill.
Martocello & Co., Jos. A. Philadelphia, Pa.
Refrigeration Engineering Corp., Philadelphia, Pa.

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Gifford-Wood Co., Hudson, N. Y.
The Lilly Co., Memphis, Tenn.
Link-Belt Co., Chicago, Ill.
Refrigeration Engineering Co., Montgomery, Minn.
United Ice & Oil Supply Co., Boston, Mass.

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Frick Co., Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

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The Lilly Co., Memphis, Tenn.
Link-Belt Co., Chicago, Ill.
Miller & Son, Inc., Franklin P. New York, N. Y.
Refrigeration Engineering Corp., Philadelphia, Pa.
Tri-Pak Machinery Service Inc. Harlingen, Texas
United Ice & Oil Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.

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International Paper Co., New York, N. Y.
The Lilly Co., Memphis, Tenn.
Union Bag & Paper Co., New York, N. Y.
United Ice & Oil Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.

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The Lilly Co., Memphis, Tenn.
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United Ice & Oil Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.

ICE CUBING MACHINES
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The Lilly Co., Memphis, Tenn.
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Union Bag & Paper Corp., New York, N. Y.
United Ice & Oil Supply Co., Boston, Mass.
Vivian Mfg. Co., St. Louis, Mo.

ICE ELEVATORS AND CONVEYORS
Capital Elevator & Mfg. Co., The, Columbus, Ohio
Gifford-Wood Co., Hudson, N. Y.
Link-Belt Co., Chicago, Ill.

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Creamery Package Mfg. Co., Chicago, Ill.
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.
Detroit Ice Machine Co., Detroit, Mich.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Company, Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Ice Plant Equipment Co., Inc. Philadelphia, Pa.
Kehoe Machinery Co., Inc., R. P., Ridgefield Park, N. J.
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Reynolds Mfg. Co., Springfield, Mo.
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Frick Company, Waynesboro, Pa.
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Jamison Cold Storage Door Co., Hagerstown, Md.
Penguin Ice Service, Marion, Ill.
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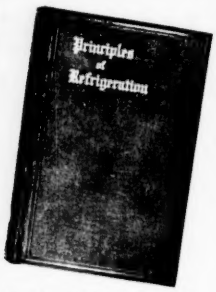

PRINCIPLES OF REFRIGERATION, 3rd Edition (1947) revised by Wm. H. Motz, provides information and data for the practicing refrigeration engineer. Of special interest to erecting and operating refrigerating engineers, refrigeration machinery sales engineers, persons employed in building refrigerating machinery and those employed in ice making, cold storage plants or other establishments equipped with refrigerating machinery. Contains information that the refrigerating engineer should know in order that he may have complete and up-to-date knowledge.

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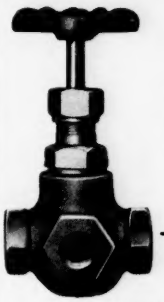

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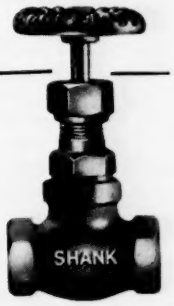

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1—10x10 York ammonia compressor, late type, 360 r.p.m.
1—10x10 York ammonia compressor, 250 r.p.m.
1—9x9 York ammonia compressor, 200 r.p.m.
1—8x8 Frick ammonia compressor, late type, with capacity control valves.
2—8x8 Yorks ammonia compressors 200 r.p.m.
2—6½x6½ York high speed ammonia compressors.
1—6x6 York 300 r.p.m.
1—5x5 York late style self contained unit.
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Assorted brine coolers and condensers. ASME coded vessels like new.

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FOR SALE

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Perfection "Regular" ice scoring machine.
2—7½ h.p. agitators.
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Type 50 F & E ice cubing machine.
12½x14½ York, direct connected to 150 h.p. synchronous motor.
120 ton shell & tube condenser.

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WANTED—Complete used Frick, York 300 lb. can ice plants 10 to 40 tons, 220-60-3 drive low pressure air, also high speed Frick, York ammonia compressors 4x4 to 10x10, shell-tube condensers, receivers, boosters. Only modern equipment. Give year installed, serial numbers, detailed description, price F.O.B. Prefer Illinois and West. No dealers. Address Box SP-17, Ice and Refrigeration, 435 N. Waller Ave., Chicago 44, Ill.

COLD STORAGE EQUIPMENT

First-class condition; Dallas plant converting to dry storage. Frick compressors, 10x10, 9x9, 6x6; Bruce 180 & 165 H.P. engines. 125 KVA AC generators, etc. Catalogue on request.

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FOR SALE—3x3 two cylinder York compressor, excellent condition; needs 1 gauge cock; shell & tube condenser; 5 h.p. 220 volt, 3 ph., 60 cycle motor, just rewound. New service and magnetic switches which cost $75; could be made into nice self-contained unit cheaply; $400.00. Address W. H. Burton, 2415 W. Lexington St., Baltimore, Md.

COMPRESSORS FOR SALE

1—Worthington 14"x10"x14" horizontal double acting duplex 2 stage ammonia compressor, complete with cross connections, stop valves, strainers, force feed oiling system, arranged for direct connection and connected to 300 h.p. 2200 volt, 3 phase, 60 cycle, 40 C unity power factor synchronous motor complete with motor generator set, starting panel and controls. Capacity of compressor at 24# suction pressure and 225# discharge at 257 r.p.m. is 170 tons, requiring 286 BHP.

2—York Arctic 13x18 horizontal double acting duplex ammonia compressors complete with cross connections, stop valves, strainers, central oiling system, arranged for direct connection and connected to 333 h.p., 2200 volt, 3 phase, 60 cycle, 138 r.p.m. unity power factor synchronous motors, complete with belted exciter sets, starting panels and controls. Capacity of compressors at 24# suction and 225# discharge pressure at 138 r.p.m. is 180 tons requiring 325 HP.

THE ELYRIA BELTING & MACHINERY CO.
P.O. Box 5, Elyria, Ohio

FOR SALE—ICE PLANTS AND EQUIPMENT

30-35-50 Ton Ice Plants

1—10"x10" York Ammonia compressor direct connected to a 60 H.P. synchronous motor 200 R.P.M.
1—10"x10" York ammonia compressor direct connected to 100 H.P. synchronous motor 200 R.P.M.
1—9"x9" ammonia compressor direct connected to 50 H.P. synchronous motor 200 R.P.M.
1—10"x10" York ammonia compressor 200 R.P.M.
1—Duplex 10"x10" Worthington Carbondale High Speed compressor direct connected to 250 H.P. synchronous motor.
1—6"x6" Voss Ammonia compressor.
2—4"x4" H.S. self contained units.
1—3"x3" Frick H.S. self contained units.
1—25" dia. x 10'-0 long 5 pass enclosed type ammonia condensers.
Assorted sizes electric hoists ranging from 2 to 6 ton capacity.
1—Gifford Wood Uline Scoring Machine series No. 3.
1—Gifford Wood four tier, ice tiering machine.
2—Gifford Wood Creasey Ice Crushers, motor driven.
1000 Ice Cans, assorted sizes.
1—Sheppard 2½ ton crane—9 can grid.

Brine coolers, double pipe 2" and 2" horizontal brine coolers, submerged Shell and tube type 1¼" and 2" ammonia coils approximately 10,000 feet.

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Enterprise Equipment Corporation
77-79 Alexander St., Yonkers, N. Y.

Phone Yonkers 8-8118-9
Cable address: ENEQCO

USED ICE MACHINES AND EQUIPMENT

All Used Equipment Is Reconditioned In Our Modern Machine Shop

THIS IS ONLY A PARTIAL LIST-WRITE ABOUT ANY REQUIREMENTS WHICH YOU HAVE

WE ARE BUYING ADDITIONAL EQUIPMENT ALL OF THE TIME

Compressors With or Without Motors

	Item No.
1—4x4 York, 300 RPM	16
6—6x6 York's, 200 RPM	20
1—6x6 Frick, 257 RPM	21
1—6x6 York, 400 RPM, forced-feed lubrication	25
2—6½x6½ Arctics, 350 RPM, forced feed lub.	30
1—7¼x7¼ Baker, 350 RPM, forced feed lubrication	35
1—7x7 Frick, 200 RPM	40
1—7½x7½ York, 200 RPM	51
2—7½x7½ Yorks, 350 RPM, forced-feed lubrication	54
1—8x8 Frick, 400 RPM forced feed lub., V-belt wheel	57
2—8x8 Yorks, 400 RPM, forced feed lub., V-belt wheels	58
1—9x9 Arctic, 300 RPM, forced feed lub.	62
1—9x9 York, 200 RPM	71
1—9x9 Worthington, 325 RPM, forced feed lub.	72
1—10x10 De La Vergne, 360 RPM, forced feed lub.	73
1—10x10 York, 257 RPM, forced feed lub.	80
1—10x10 Carbondale, 100 HP synch. motor, 350 RPM	81
3—10x10 York's, 225 RPM, semi-forced feed lub.	82
1—11x13 York, 164 RPM, forced feed lub.	90
1—17x18 Frick, direct conn. 300 HP synch. motor	91
2—12x12 Frick, direct conn. 150 HP synch. motor	98

Diesel Driven and Diesel Engines

1—8x8 York—Direct connected to 50 H.P. Fairbanks-Morse at 257 R.P.M. 210

Steam Driven

1—8x8 Vertical York, 300 R.P.M. direct connected 327

Pipe

10,000 feet wrought Iron pipe—2"—like new 451

Complete Ice Plants

	Item No.
1—20 ton, 240 can, Diesel-driven plant	626
1—15-ton electric driven plant	630
1—600 Can Trunk Coil Type—York Plant, Brand New Tank. *Complete with 10 Can Grids. This plant is equal to new*	631
Brand New 8 to 10-ton Clear Ice-Making Plants—110 Cans—Electric or Diesel Drive—2 Can Pull	632
1—*247 Can, 22-ton ice plants, like new*	632A
1—35-38 ton New Clear Ice Making Plants	635
1—150 Ton Multi lift—1622 Can Plant	636
1—702 Can Plant—9 Can Pull	637
1—920 Can Plant—12 Can Pull	638
1—150 Ton Ice Plant—2 Tank	660

Self-Contained Units

3—4x4 York & Fricks	742
1—5x5 York—390 R.P.M.	743
1—4½x5 Lipman—360 R.P.M.	744
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Brine Coolers

1—34x10—100—2	802
1—48"x16'—130—2" tubes	808

Condensers

3—100 ton shell and tube condensers retubed	919
1—125-ton, Vertical Shell & Tube, 196 2" tubes	921
1—120 ton, 216—2" retubed Vertical Shell & Tube	922
2—20 ton Horizontal—retubed	924

Ice Cans

150—11½"x22½"x44"—cap refinished in zinc

500—11"x22"x47"—ice cans

NEW EQUIPMENT FOR IMMEDIATE DELIVERY

Compressors With or Without Motors

	Item No.
3x3 to 5 x 5 —390 R.P.M.	1001
6x6 to 10x16—390 R.P.M.	1002
3x3 to 5 x 5 —Self-contained units, complete	1003
5x5—Self contained—15 H.P. motor—V Belt	1004

Ammonia Condensers

4—12¾x12 Horizontal—36—1¼" tubes	1020
2—30x14 Vertical 109—2" tubes	1021
1—16"x10"x10' Shell and Tube Condenser, 60 1¼" tubes	1022

Ice Cans

50—100 lb. cans—15½"x8"x31"	1041
40—50 lb. cans—6"x12"x26"	1042

Ammonia Valves and Fittings

	Item No.
⅜" to ¾"—Screwed Expansion Valves	1050
½" to 2"—Screwed Globe Valves	1051
1" to 6"—Square Flanged Globe Valves	1052
Check Valves	1053
Relief Valves	1054
Strainers	1055
Steel & Malleable Fittings	1056
Extra heavy Ammonia Nipples	1057

Ammonia Guages, Ammonia Receivers, Ice Crushers, Agitators, and Receivers and Oil Separators.

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NATIONAL DISTRIBUTORS OF CAMARGO CORK TO THE ICE INDUSTRY

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FOR REFRIGERATION AND FOOD PROCESSING APPLICATIONS

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Mercoid low voltage thermostats known as Sensatherms, are particularly adaptable to air conditioning and refrigeration equipment. They are very sensitive, small in size and neat in appearance. Total operating differential is 1 degree F., being adjustable to as wide as 5 degrees F. These instruments will handle 20 watts or less on 110 or 220 volts without the use of a relay.

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The No. 855 Mercoid thermostats will directly handle the full motor load without the use of a relay. They are recommended for such applications as cooler rooms, florists' cabinets or butcher cases. Available in a variety of ranges to suit all requirements. Furnished standard with adapter plate for attachment to standard wall switch boxes. Electrical capacity 10 amp. 115 volts, 5 amp. 230 volts.

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Type DA-51 for control of Freon, Methyl Chloride Sulphur Dioxide or any other refrigerant not injurious to bronze. Equipped with outside double adjustments. Adjustable from 0 to 200 pounds. Minimum differential 8 pounds. Maximum operating pressure 240 pounds.

LOW PRESSURE AMMONIA

Type DA-61 provides close regulation of Ammonia refrigeration equipment from changes in suction pressure. By means of this control the regulation of individual box temperatures is adjustable from 10" vacuum to 75 pounds pressure and will withstand a maximum pressure of 150 pounds. Equipped with external adjustments.

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Type V Mercoid Transformer-Relay is a reliable low voltage relay which also acts as a transformer. They are designed to meet severe operating conditions encountered with automatic refrigeration equipment. There is no hum or chatter, nor can there be any residual magnetism. These relays are particularly adaptable to air conditioning applications where quietness is essential.

All Mercoid Controls are equipped exclusively with mercury switches—assuring better control performance and longer control life

Write for Mercoid Catalog No. 600A

THE MERCOID CORPORATION, 4203 W. BELMONT AVE., CHICAGO 41, ILL.

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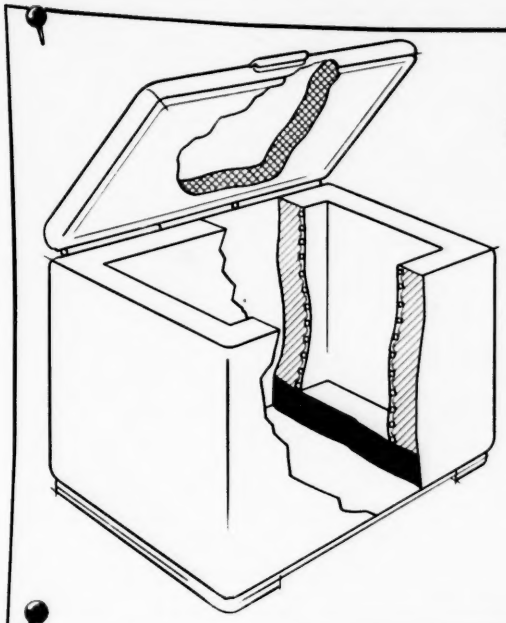

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Used in lid. Lightweight, with a low thermal conductivity that allows thickness of only 2½" to perform efficiently.

513 FIBERGLAS
Used in sides. Extremely high insulating efficiency and guaranteed conductivity of .225 at 75 degrees F. mean temperature allows a wall thickness of only 3½".

614 FIBERGLAS
Used in bottom. 4½-lb. density has high insulating efficiency and sufficient strength to support normal load without any bracing members. Used in 3½" thickness.

WHICH IS THE BEST INSULATION FOR A HOME FREEZER?

No single insulating material can be recommended as best for all home freezers. Some freezers will operate most efficiently with only one or two materials. Others may require three, or even more. It's the design and construction of the freezer that determines which insulations will do the best job.

In the model above, 3 types of Fiberglas* provide top insulating efficiency and some striking economies as well. In the bottom of this unit, for example, 614 Fiberglas was strong enough to permit construction without rigid supporting strips. That meant a saving in time as well as labor that would have been needed to cut and install the load-bearing strips.

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For additional information on Armstrong's Equipment Insulations and Life Test Service, call the Armstrong office nearest you or write to Armstrong Cork Company, 4510 Queen Street, Lancaster, Pennsylvania.

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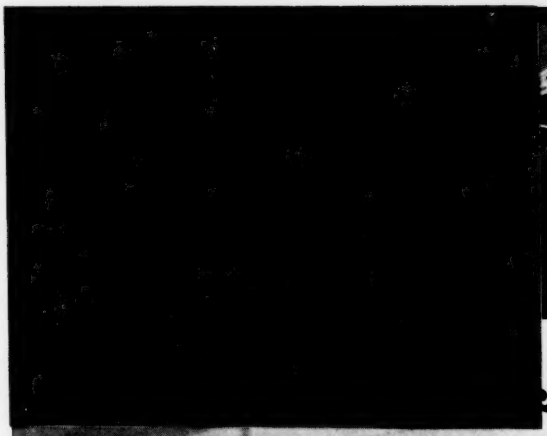
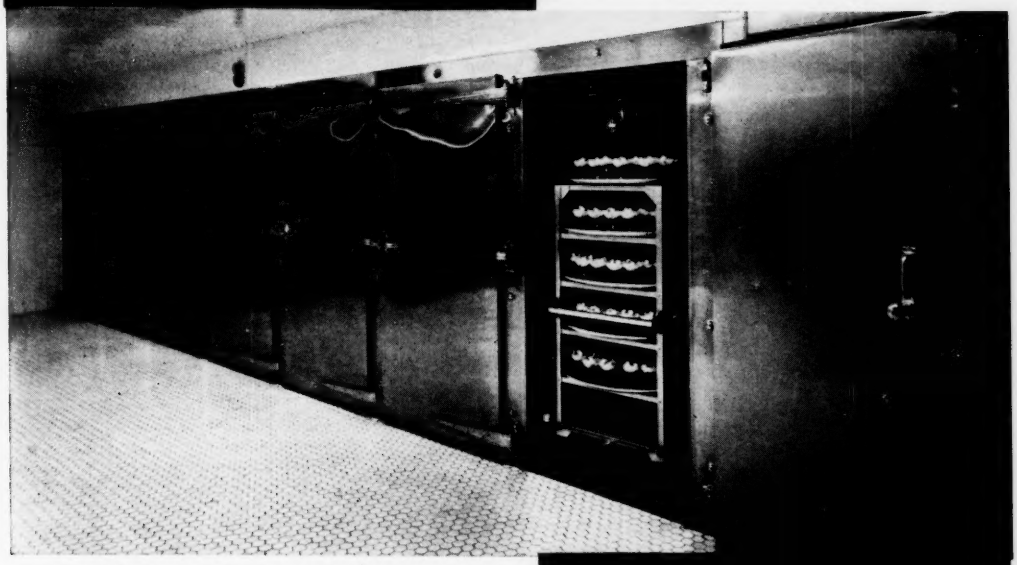
ARMSTRONG'S EQUIPMENT INSULATION

LK CORKBOARD • FIBERGLAS • TEMLOK



JAMISON doors



Seven Jamison cold storage doors in the salad kitchen at The Shoreham Hotel completely metal clad with polished stainless steel and equipped with chrome plated hardware.

JAMISON

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